

# Sextus Empiricus and Ancient Physics

EDITED BY

Keimpe Algra  
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## SEXTUS EMPIRICUS AND ANCIENT PHYSICS

Sextus Empiricus' two books *Against the Physicists* have not received much attention in their own right, as sustained and methodical specimens of sceptical philosophy. This volume redresses the balance by offering a series of in-depth studies on them, focusing in particular on their overall argumentative structure and on the various ways in which their formal features relate to their contents, showing how Sextus' procedures vary from one section to the other, and throwing new light on the way he was using his sources. It follows Sextus' own division of these two books into nine successive topics, namely god, cause, wholes and parts, body, place, motion, time, number, coming-to-be and passing-away. These nine chapters are preceded by an introduction, which discusses a number of general features of Sextus' scepticism and links the conclusions of this volume to some recent discussions on the scope of ancient scepticism.

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and  
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*For Michael Frede*





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## Preface

The chapters of this volume emerged from the eleventh Symposium Hellenisticum, which was held at the European Cultural Centre in Delphi, 6–12 August 2007. This symposium was dedicated to the two books *Against the Physicists* (M 9 and 10) by Sextus Empiricus. However, these books were not primarily studied for what they also are: an important source for our knowledge of earlier philosophies. Instead the focus was Sextus himself: on his strategy as a Pyrrhonist, the argumentative structures in the two books, their relation to the partly parallel accounts of book 3 of the *Outlines of Pyrrhonism*, their possible sources, and the various ways in which their formal features relate to their contents. The conference was organized around nine papers, following Sextus' own division of the text into nine topics: god, cause, wholes and parts, body, place, motion, time, number, coming-to-be and passing-away. In the end, this resulted in the present volume in nine chapters. For reasons of (electronic) accessibility, and at the request of Cambridge University Press, we have opted for a volume title that is both straightforward and informative. This means that we have had to take leave of the tradition of providing the proceedings of the Symposium Hellenisticum with a more alluring, but less informative, alliterating main title.

The format of the Symposium Hellenisticum allows for in-depth discussions: the papers are as a rule circulated in advance and discussed in sessions of three hours each. Participants are also invited to send in written comments afterwards, and readers are assigned to every paper at the stage of final revision after the conference. In addition to the authors of the contributions included in this volume, the participants at this Symposium (and their affiliations at the time) were: Thomas Bénatouïl (University of Nancy), Charles Brittain (Cornell University), Myles Burnyeat (emeritus University of Oxford), Myrtho Dragona-Monachou (em. University of Athens), Michael Frede (em. University of Oxford), Dorothea Frede (University of Hamburg), Brad Inwood (University of Toronto), Anna Maria Ioppolo

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As editors of this volume we would like to thank all participants for their contributions to the discussion, and the readers of the individual contributions for their constructive critical remarks and suggestions for improvement and revision. Thanks are also due to the two anonymous readers of Cambridge University Press for their helpful comments, and to our editor, Michael Sharp and our production editor, Elizabeth Hanlon, for their patience and support. Anna Tigani helped us in organizing the conference in Delphi, and Maarten van Houste and Johannes Rustenburg offered invaluable assistance in preparing the volume for print and in compiling the indices.

Financial support came from the European Science Foundation, the C. J. de Vogel Foundation, the Evert Willem Beth Foundation, the ZENO Research Institute for Philosophy at the University of Utrecht, the J. F. Costopoulos Foundation, the John S. Latsis Public Benefit Foundation and the Technical Chamber of Greece. We are very grateful for these generous grants, without which the conference would not have been possible.

This volume is dedicated to the memory of Professor Michael Frede, one of the participants of the Symposium in Delphi, whose sudden death, on the last day of the conference, has deeply affected not only those present, but the whole international community of students of ancient philosophy.

KEIMPE ALGRA

KATERINA IERODIAKONOU

## Abbreviations

The following abbreviations are used for standard works:

- DG        Diels, H. (1879, 1958<sup>3</sup>) *Doxographi Graeci*. Berlin.  
DK        Diels, H. (1903, 1952<sup>3</sup> rev. by W. Kranz) *Die Fragmente der Vorsokratiker* (vols. I–III). Berlin.  
EK        Edelstein, L. and I. Kidd (eds.) (1972) *Posidonius*, vol. 1: *The Fragments*. Cambridge.  
FHSG     Fortenbaugh, W. W., P. M. Huby, R. W. Sharples and D. Gutas (eds. and trans.) (1992) *Theophrastus of Eresus. Sources for his Life, Writings, Thought and Influence* (2 vols.). Leiden.  
LS        Long, A. A. and D. N. Sedley (eds.) (1987) *The Hellenistic Philosophers*, with translation and commentary (2 vols.). Cambridge.  
LSJ       Liddell, H. G., R. Scott and H. S. Jones (1996<sup>9</sup>) *A Greek–English Lexicon*, revised and augmented edition. Oxford.  
SVF       Von Arnim, J. (1903–5, 1964<sup>2</sup>) *Stoicorum Veterum Fragmenta* (vols. I–III). Stuttgart.

Works of Sextus Empiricus:

- M        *Against the Mathematicians*  
PH       *Outlines of Pyrrhonism*

For abbreviations of titles of ancient works this volume follows the conventions of LSJ and the *Oxford Classical Dictionary* (revised 3rd edn. 2003)





## Introduction

### *Notes on sceptical method and doxographical transmission*

*Keimpe Algra and Katerina Ierodiakonou*

### About this volume

This volume may serve as a companion to the two books *Against the Physicists* by Sextus Empiricus. These books, which offer a sceptical discussion of the main concepts of ancient physics, are part of a collection of five books *Against the Dogmatists* (*Adversus Dogmaticos*), which are in their turn nowadays known as part of a larger work, *Against the Mathematicians* in eleven books. It is usually assumed that Sextus lived and worked in the second century AD,<sup>1</sup> and his works are our main source of information on Pyrrhonism, the particular brand of scepticism that flourished between the first century BC and Sextus' own days, that appears to have dwindled away in later antiquity to become virtually unknown in the Latin Middle Ages, but that made a remarkable comeback in the early modern period.<sup>2</sup>

In the past the rich text of *Against the Physicists* has not received much attention in its own right, apart from a few isolated contributions on special subjects.<sup>3</sup> It has mostly and primarily been mined as a quarry of

I am grateful for the useful and spirited discussion of a draft version of this chapter by the participants of the Symposium Hellenisticum. Special thanks go to Keimpe Algra, Gábor Betegh, Richard Bett, Charles Brittain, and Brad Inwood for the most helpful written comments, which made the chapter better; to my colleagues Verity Harte and Barbara Sattler for sharing some of their expertise on Plato's and Aristotle's philosophy of time, as a result of which the chapter improved further; and to the anonymous referee from CUP for a set of very useful additional remarks. The essay is dedicated to the memory of Michael Frede, whose loss as a friend and a colleague I deeply feel.

<sup>1</sup> As for Sextus' biography, we know little more than that he was a Pyrrhonist and a medical practitioner (*PH* 2.238; *M* 1.260; *M* 11.47) who must have lived and worked after the death of the emperor Tiberius (to whom he refers in the past tense in *PH* 1.84) and not later than Diogenes Laertius, who refers to him (9.116). See House 1980 for a critical examination of the relevant evidence.

<sup>2</sup> On the whereabouts of Pyrrhonism in the Latin Middle Ages and in the Byzantine world, and on its rediscovery in the early modern period – especially after the publication of the Latin translations of *PH* by Henri Estienne in 1562 and of *M* by Gentian Hervet in 1569 – see Schmitt 1983; Bydén 2002; Floridi 2002 and 2010; Lagerlund 2010.

<sup>3</sup> Contributions on special subjects: Barnes 1988; Warren 2003. The recent *Cambridge Companion to Ancient Scepticism* (Bett 2010) has special chapters on scepticism and ethics, and on scepticism and the sciences, but not on scepticism and physics. On the other hand, we do now have a valuable

information on earlier philosophies, especially on the Hellenistic schools. On the other hand, and for obvious reasons, modern scholars' engagement with Sextus' *own* philosophical position has usually centred on the more systematic first book of his *Outlines of Pyrrhonism*, in which he describes Pyrrhonian scepticism as a 'way of life', setting it off against other philosophical positions and describing its method and terminology.

Their specialized subject matter notwithstanding, the two books *Against the Physicists* should be regarded as part of Sextus' overall sceptical project. After all, Pyrrhonian scepticism is more than just an epistemological position. In so far as it constitutes a 'way of life' (*diagōgē*) it involves an ongoing engagement with logic, physics and ethics, but also with the knowledge claims of grammar, rhetoric and the mathematical sciences. In the end it is the consistent and ongoing process of constructing a *diaphōnia* of opposing accounts of equal strength in all these areas that will inevitably lead to the sceptic's suspension of judgment (*epochē*), resulting in a state of tranquillity (*ataraxia*).<sup>4</sup> Hence the following description of Pyrrhonian physics:

We do not study natural science in order to make assertions with firm conviction about any of the matters on which scientific beliefs are held. But we do touch on natural science in order to be able to oppose to every account an equal account, and for the sake of tranquillity. This is also the spirit in which we approach the logical and ethical parts of what they call philosophy. (*PH* I.18)

This volume aims to study how the two books *Against the Physicists* carry out this project in practice. Even if, as we saw, this to some extent constitutes a novel approach to this text, it goes without saying that the authors of the various contributions have gratefully used the results of the renewed interest in Pyrrhonism in general that we have witnessed over the last three decades or so.<sup>5</sup>

Each of the chapters covers one of the individual topic-related sections in Sextus' text, which means that the book as a whole covers all of *Against*

annotated translation of *Against the Physicists* in the form of Bett 2012. In general, most contributors to the present volume have not been able to take account of it, because it was published after they submitted their contributions.

<sup>4</sup> *PH* I.8; on the nature of the sceptic's ongoing 'searching', see Hankinson 1995: 297–303; see also below, n. 57, on Sextus' habit of qualifying his conclusions with riders such as 'now' or 'for the moment'.

<sup>5</sup> Two recent volumes that may be regarded as indicative of the state of our knowledge of ancient Pyrrhonism and of the main questions discussed by contemporary scholarship are Bett 2010 and Machuca 2012. Some useful general studies: Barnes 1990a; Hankinson 1995; Bailey 2002.

*the Physicists* and may indeed serve as a philosophical running commentary to it.<sup>6</sup> In accordance with this overall design, the present Introduction does not attempt to introduce and summarize the individual contributions but aims to offer some thematic inroads into a number of general issues that cut across the individual chapters. It covers the place of *Against the Physicists* within the whole of Sextus' philosophical output, in particular the relation between this work and the partly parallel sections in book 3 of *Outlines of Pyrrhonism*, the general structure of the text, the sceptical strategies within the individual chapters, the main types of argument used by Sextus, and the question of his sources. Some of these issues are matters of controversy, also between the contributors to this volume. Accordingly, readers should not expect the individual contributions to be governed in all respects by a single overarching view on Sextus and his methods and purposes. Nor should they assume that the views put forward in this Introduction are necessarily shared by all contributors. The aim of this Introduction is to set the stage, to connect some of the main themes that recur in the various contributions, to raise some questions and offer some possible answers. Cross-references to the individual chapters will help the reader to trace agreements and disagreements on points of detail.

### Sextus and his two books *Against the Physicists*

The title of the two books *Against the Physicists* does not appear to be of Sextus' own making, although he does seem to refer to these books by the descriptive label 'notes against the physicists' (*M* 1.35; 3.116). Together with two books *Against the Logicians* and one book *Against the Ethicists*, they constitute a collection of five books *Against the Dogmatists* (*Adversus Dogmaticos*). In the manuscript tradition these five books, which contain a sceptical discussion of the most relevant subjects in the three main areas of philosophy, came to be appended to six books *Against the Mathematicians* or (alternative translation of the Greek) *Against the Professors* (*Adversus Mathematicos*), which contain a sceptical discussion of the knowledge claims of the liberal arts. As a result they were later generally referred to as books 7–11 of *Adversus Mathematicos*. Of these *M* 7 and 8 are the two

<sup>6</sup> This is also why each contribution offers a more or less detailed 'break-down' of the argument of the relevant section in Sextus, sometimes as part of the running text, sometimes as a separate appendix. We have left it to the individual contributors to decide which form was most appropriate, given the overall design of their chapter. Those who want a complete overview of the contents of the two books will find it in Bett 2012: xxvii–xxxiii.

books also entitled *Against the Logicians*, *M* 9 and 10 are our two books *Against the Physicists*, and *M* 11 is *Against the Ethicists*.

Sextus also wrote three books of *Outlines of Pyrrhonism* (*Purrhōneioi Hupotupōseis*) of which the first offers a neat and fairly systematic outline of Pyrrhonian scepticism and the way in which it relates to other philosophies, whereas the second and third books offer a sceptical discussion of the principles of dogmatic philosophy: logic in book 2, physics and ethics in book 3. Elsewhere he refers to some other works which are now lost: the *Empirical Notes* (*Empeirika Hupomnēmata*, referred to at *M* 1.61), possibly identical with the *Medical Notes* (*Iatrika Hupomnēmata*, referred to at *M* 7.202), and a treatise *On the Soul* (*Peri Psuchēs*) which may or may not have been a separate work (referred to at *M* 6.55 and *M* 10.284).

The surviving material accordingly consists of three corpora:

- (1) *M* 1–6,
- (2) *M* 7–11, and
- (3) *PH* 1–3.

Our two books *Against the Physicists* belong to (2). About this second corpus and how it relates to (1) the following observations can be made:

- (a) It is likely that (2) should as a whole be identified as (part of) a work to which (1) refers as the *Sceptical Notes* (*Skeptika Hupomnēmata*; references at *M* 1.29; 2.106; 6.52); this suggests both that (1) and (2) were conceived as different works and that (2) antedates (1).
- (b) As noted above, there are what appear to be specific backward references to our two books *Against the Physicists* in (1), namely in *M* 1.35 and 3.116, which seem to confirm the chronological priority of (2).<sup>7</sup>
- (c) There are (more or less close) parallels between the texts of (1) and (2); thus the sections on wholes and parts, body, number and time in our two books *Against the Physicists* contain passages that are paralleled within the mathematical sections of (1); this becomes understandable once one realizes that the latter focus to a large extent on mathematics *as applied in physics*.<sup>8</sup>
- (d) The original collection of *Skeptika Hupomnēmata* may well have been larger than (2), that is, larger than the remaining five books of *M* 7–11, for Diogenes Laertius 9.116 (and a corresponding passage in the *Suda*) refers

<sup>7</sup> See *M* 1.35 (ἐν ταῖς πρὸς τοὺς φυσικοὺς ἀντιρρήσεσι) and *M* 3.116 (ἐν τῷ πρὸς τοὺς φυσικοὺς ὑπομνήματι). It is in principle possible, as Betegh argues elsewhere in this volume (p. 175, n. 86), that these references should be taken to be to the relevant section of *PH* 3, in which case *M* 7–11 might well postdate *M* 1–6 (which Betegh has reasons to believe is the case). On the other hand, this would require a similar explanation for the various other references to the *Skeptika Hupomnēmata* within *M* 1–6; and in general we may observe that the term *hupomnēma* seems to fit *M* better than *PH*.

<sup>8</sup> See the useful list of parallels in Bett 2012: 161–4. See also the contributions of Betegh, Bobzien and Brennan to the present volume.

to it as a work in ten books;<sup>9</sup> and it is possible that this work started out with a general account of Pyrrhonism, comparable to what we find in *PH* I.<sup>10</sup>

An even larger number of parallels can be detected between the corpora (2) and (3) and in this case the relative chronology has proved to be a matter of controversy. *PH* is a *hupotupōsis*, a relatively short and elegant account in outline. It consists of two parts: book 1 deals with what Sextus calls the *katholou logos* (or ‘general account’) of Pyrrhonian scepticism, namely an exposition of the nature of the sceptical position, the modes used by sceptics, and the differences between these sceptics and other schools.<sup>11</sup> Books 2 and 3 then give the *eidikos logos* (the ‘special account’), the sceptical way of dealing with a host of individual subjects. *M*, by contrast, is a collection of *hupomnēmata*, ‘treatises’ or even ‘notes’,<sup>12</sup> in its present form exclusively covering the ‘special’ account.<sup>13</sup> With its five books it is more than twice the size of the ‘special’ section of *PH*. As noted, numerous parallels exist between *M* and this ‘special’ section of *PH*, but it can also be observed that on the whole *PH* seems to be better organized, as one might perhaps expect, given the difference between a *hupotupōsis* and a collection of *hupomnēmata*. Indeed, *PH* contains various statements on Sextus’ part to the effect that the work only gives an outline (*PH* I.4), that he accordingly only gives ‘few out of many examples’ and that he is concerned to be brief (*PH* I.163),<sup>14</sup> whereas *M* shows no such restrictions.

<sup>9</sup> Some scholars have argued that the ten books of which Diogenes speaks must refer to (a version of) the whole of *M*, with two books having been coalesced into one, but this is unlikely because, as we just saw, three of the books from *M* 1–6 contain references to the *Skeptika Hupomnēmata* as to another work. Cf. Blomqvist 1974.

<sup>10</sup> The introductory section of *Against the Logicians* (*M* 7.1) refers back to a general treatment of Pyrrhonism, i.e. something analogous to *PH* I, and this may have been part of the lost section of the *Skeptika Hupomnēmata*, although the reference has also been taken to be to *PH* itself (but see Bett 2005: xi).

<sup>11</sup> For the terms *katholou logos* and *eidikos logos*, see *PH* 1.5.

<sup>12</sup> On *hupomnēmata* as more or less loosely connected sets of ‘notes’, often (though not necessarily) used as a basis for the preparation of more ordered treatises, see Dorandi 1991. With all due caution, we may perhaps compare the working procedure of Plutarch, who kept such notebooks (*hupomnēmata*; cf. *De Tranq. Anim.* 464f. and *De Cohibenda Ira* 457D–E) and used them in writing his treatises. We also know that Plutarch composed a work entitled *Selections and Refutations of Stoics and Epicureans* (no. 148 in the Lamprias catalogue), in which he had amassed ammunition against the two main contemporary rival schools, which he probably used in other works as well.

<sup>13</sup> In writing both a *hupotupōsis* and *hupomnēmata* Sextus may have been following Aenesidemus, who wrote both a *hupotupōsis* and *Purrhōneioi logoi* (see Diogenes Laertius 9.78: καθά φησιν Αἰνησιδῆμος ἐν τῇ εἰς τὰ Πυρρώνεια ὑποτυπώσει; and 9.106: Καὶ Αἰνησιδῆμος ἐν τῷ πρώτῳ Πυρρωνείῳ λόγῳ κτλ.).

<sup>14</sup> Cf. *PH* 3.56, where the section on mixture is introduced as follows: ‘we shall for the moment, owing to the design of our treatise (διὰ τὴν πρόθεσιν τῆς συγγραφῆς), excuse ourselves from answering all their views in detail, deeming that the following remarks will amply suffice for the present’.

At the end of the final book 11 of *M*, the *Against the Ethicists*, Sextus claims that he has completed his journey (*diexodos*) through the sceptic system (or rather: 'way of life' (*diagōgē*), 11.257), thereby implying that he has not merely given a selection, but a complete guided tour.

For quite some time the *communis opinio* among scholars appears to have been, for the most part on the basis of stylistic investigations of Janáček, that *PH* was the earlier work and that *M* 7–11 should be regarded as a kind of 'blow-up', with additions and changes, of *PH* 2 and 3.<sup>15</sup> This 'standard' chronology (with the sequence (1) *PH*, (2) *M* 7–11, (3) *M* 1–6) has been doubted or criticized by various scholars, among them Richard Bett, who has made the most elaborate case for a revised chronology according to which *PH* postdates *M*. The main arguments that have been used to suggest that *PH* must be the later work are:

- (i) the stylistic differences between the two works as noted by Janáček (which as such are taken to show that the two works must belong to different periods, though not necessarily which of the two is the earlier one: Bett reverses Janáček's chronology);
- (ii) the fact that *M* may be seen to show traces of an earlier form of Pyrrhonism which is no longer present in *PH*; and
- (iii) the fact that the structure of *PH* is more achieved and polished.<sup>16</sup>

As is often the case with questions like these, none of these arguments is really conclusive when taken by itself. As we have just seen, the stylistic argument (i) has been used to argue both ways, so it does not naturally and obviously favour one *particular* relative chronology. Argument (ii) may look more promising, but below (pp. 21–2) we will raise some doubts on whether the differences between the two treatises are really significant in this respect and on whether they can be taken to point to different chronological stages (corresponding to a changed attitude on Sextus' part with respect to the alleged earlier form of Pyrrhonism or the way in which it expressed itself) at all. This leaves us for the moment with argument (iii), which certainly has some *prima facie* plausibility. *PH* is in many respects the better-ordered text, and why should we not assume that the better-ordered text is the later one? Moreover, a passage such as *PH* 3.56, referred to above,<sup>17</sup> which claims that Sextus will here not deal with all arguments in detail, may be taken to suggest that he has a store of these arguments available, and why would not this larger storehouse be *M* 9 and 10? On the other hand, there is no need to assume *a priori* that one of our

<sup>15</sup> Janáček 1948 and 1972; see also Brochard 1923: 318–19.

<sup>16</sup> See Bett in this volume (pp. 34–40); see also Brunschwig 1988b: 152, n. 9 and more recently Pellegrin 2010. Contrary assessment, as said, in Janáček 1963.

<sup>17</sup> See above, n. 14.

two works must be a revised version of the other one.<sup>18</sup> It is very well conceivable that Sextus in the end had an even larger store of arguments at his disposal than we find in *M*, and his selection from this collection may just have been different for *PH* on the one hand and for *M* on the other, in accordance with the different purposes of the two treatises.<sup>19</sup>

Especially since there are no unambiguous cross-references between the two works, it appears that the question of chronological priority is hard to settle, and it will no doubt not be settled by the present volume either.<sup>20</sup> The readers should judge for themselves. Richard Bett makes a strong case for his views in the first chapter of this book. Other authors show some reservations on points of detail and adduce passages in *M* that make it hard to believe that the counterpart in *PH* must be the later version, or in general that any one of the two treatises should be seen as the source for the other.<sup>21</sup> We will definitely need more detailed investigations of this kind if we are ever going to be able to clinch the issue. In the meantime, we should perhaps not unduly and exclusively focus our attention on the question of the relative chronology of the two works, and we should also envisage the possibility of explaining the differences between the two treatises in terms of the different use of common sources, the possible use of different sources and the differences in purpose and ‘type of discourse’ between the two works.

### The structure of *Against the Physicists*

The two books *Against the Physicists* provide a sceptical discussion of dogmatic physics, or physical theory. Sextus starts out (9.1) with a reference to a passage in *Against the Logicians* (*M* 7.20–4), where he had argued that although physics is the older discipline, logic should be treated first, since it claims to offer a theory of criteria and proofs and as such may serve

<sup>18</sup> For a clear instance of where the text of *M* cannot be regarded as a ‘blow-up’ of what is in *PH*, nor on the other hand the text of *PH* as an abbreviated version of what is in *M*, see Bobzien in this volume, p. 276.

<sup>19</sup> One may compare the case of the parallels between Sextus and the account of scepticism in Diogenes Laertius 9, which do not allow us to regard one of these works as directly dependent on the other either, on which see below, p. 30.

<sup>20</sup> As for possible cross-references, Janáček 1963: 274 mentions *PH* 1.222 (πλατύτερον ἐν τοῖς ὑπομνήμασι διαλαμβανόμεν) and 2.219 (πλατύτερον μὲν ἐν ἄλλοις διαλεξόμεθα, note the future tense), as possible forward references to the *Skeptika Hupomnēmata*. However, we cannot find the references in *M* (but then of course the first part of the *Hupomnēmata* appears to be missing). Conversely, *M* 9.195 (ἐν ἄλλοις ἀκριβέστερον διελέχθημεν, note the aorist) just *may* be a backward reference to *PH* 3.13ff.

<sup>21</sup> See, for example, Betegh in this volume, (pp. 174–5) who argues that it is unlikely that Sextus used the same doxographical source first in *M* 9 in a context for which it was not entirely suited and then went back to the original source (including its introductory sentence, left out in *M*), using it now, in *PH* 3, in conformity with its original context.



as the basis for all further philosophizing. Hence *Against the Physicists* is made to follow *Against the Logicians*. The ensuing discussion of physics is then presented as an attack in broad outlines: ‘we shall attack the most important and most comprehensive (*kuriōtata kai sunektikōtata*) dogmas as in the doubts cast on these we shall find the rest also included’ (*M* 9.1).<sup>22</sup> This is why the procedure can be compared to an attack on the foundations of a wall in a siege (*M* 9.2).

This focus on what is most comprehensive should not be taken to mean that the text contains no detailed *arguments*, for it abounds with them. The point is rather that the text focuses not on the details of the individual physical theories – as Academics like Clitomachus had done, for argument’s sake even sometimes taking for granted aspects of their opponent’s theory (*M* 10.1) – but offers a broadside attack on a number of key concepts which are used in the various systems and without which the systems would collapse. This will allow the author, indirectly, to cast doubt on more specific physical tenets as well: he will catch them all in one go, so to speak, just as people do who hunt or fish with a net, as opposed to those who pursue the quarry on an individual basis (*M* 10.3).

The key concepts that Sextus discusses are: god (9.1–195), cause (9.195–330), wholes and parts (9.331–58), body (9.359–66), place (10.1–36), motion (10.37–168), time (10.169–247), number (10.248–309) and coming-to-be and passing-away (10.310–50). The comparison, in the introduction, of these key concepts to the foundations of a city wall leads us to expect that, being the foundations of physics, they are somehow interconnected, and that the individual sections discussing each of them are also interconnected. To some extent this is indeed the case: we find some signposting in these two books which suggests that Sextus has a kind of coherent skeleton, or overall design, in mind, or at least that he wanted to suggest that such a skeleton can be thought up. The following overview – with the references to the main sections in bold print to make them stand out – may serve to show how this skeleton is fleshed out in actual practice.

Active and passive principles or causes are recognized by all who do physics (*M* 9.4). So we should start with these. But before starting with these, we may discuss a special case of an active cause: **god** (9.1–195). The

<sup>22</sup> A similar statement can be found at the outset of *PH* 3, which also claims that the discussion is about the most comprehensive concepts (*PH* 3.1: *katholikōtera*). On the introductory section of *M* 9, see also Bett in this volume, p. 41.

discussion of god thus in a way prefaces the more general discussion of active and passive principles or **causes** (9.195–330). Being passive is connected with being affected (in a process of change or alteration), and being affected is a matter of something being added or subtracted (9.277). Since subtraction and addition, in their turn, involve the idea of wholes and parts (9.330),<sup>23</sup> we need a discussion of **wholes and parts** (9.331–58). The latter discussion is accordingly presented as somehow subservient to the discussion about addition and subtraction, and *eo ipso* to the discussion of active and passive causes. After all, it is argued, the difficulties concerning wholes and parts will add to the doubts already signalled in connection with subtraction and addition and with active and passive causes (9.330).<sup>24</sup> So we have a connection between the first three subjects: god (as a special case of the active cause), active and passive causes as such, wholes and parts as concepts required in the explanation of subtraction and addition and hence also in the explanation of the process of being affected by an active cause.

This part of book 9 (i.e. the first three sections) winds up in 9.358 with the claim that all this has been a discussion of the active principles (*drastēriai dunameis*), and that we will now proceed with a section that ‘touches on both the active and the material principles jointly (*koinoteron*)’ (M 9.358). This reads like a rather forced *ex post* way of linking the first three sections (on god, active and passive causes, parts and wholes) with the next section on **body** (9.359–440). For, as we saw, the first three sections covered more than ‘active principles’ alone, although all subjects covered were somehow linked to the notion of an active cause. Moreover, the section which now follows, on body, hardly deals with body *as connected with active and passive causation*. It starts with a doxographical overview on first principles (*archikōtata stoicheia*) which seems to cut across the categories of active and passive causation, offering a *diaeresis* of first principles into (a) bodies and (b) incorporeals.<sup>25</sup> It then, in narrowing its focus on body, briefly brings in the notion of active and passive causation, but only in order to do away with the definition of body as that which is capable of being affected (9.366).<sup>26</sup> It goes on to discuss body as defined by ‘the mathematicians’, namely as ‘that which has three dimensions, length,

<sup>23</sup> See White, in this volume, pp. 82–3.

<sup>24</sup> See White, in this volume, p. 83.

<sup>25</sup> This new start, cutting across the earlier distinction between active and passive principles, may be legitimized by the consideration that not all philosophers distinguished between active and passive principles, or that the most prominent defenders of a combination of active and passive principles, the Stoics, thought of both principles as corporeal. See Betegh, in this volume, p. 133.

<sup>26</sup> This has a parallel in *PH* 3.38.

depth and breadth' (9.337), and this explicitly non-physical discussion, which has nothing to do with either active or passive causes, takes up the rest of the section. So the connection between this section on body and the first ones on causation appears to be rather thin.

Now, according to the doxographical part of this section on body (9.359–66) some say the first principles of things are bodies, others that they are incorporeals (such as numbers, surfaces, Ideas), and this division appears to provide the structure for the subsequent part of the discussion; for following on the discussion of body proper (9.366–440), book 10 goes on to address the incorporeals (as is explicitly announced at *M* 9.440). Nevertheless, there are some oddities in this part of the discussion as well. First, as we saw, the discussion of body very quickly transforms itself into a discussion of *mathematical* body, and in that connection it takes along surface, one of the incorporeals, as well. Secondly, the subject matter of the following sections, which are explicitly devoted to the incorporeals, does not match with the set of incorporeals mentioned in the doxographical overview (9.364). The latter comprised numbers, surfaces and Ideas. Yet, number is now the only item from this original set which is being covered. Ideas are not discussed at all. Instead we have discussions of place, motion, time, number and coming-to-be and passing-away, four of which did not figure in the original list, whereas it is not even clear whether motion and coming-to-be and passing-away are to be considered as incorporeals at all. So there is a certain mismatch between the 'programme' that has been announced and the actual material that is being presented. In the meantime a possible reason for this mismatch suggests itself as well: Sextus' dependence on his sources. Presumably the available material, both on body and on individual incorporeals, did not really fit the preconceived structure, which, as we saw, is itself dependent on a doxographical overview. We shall have to see whether this suspicion is confirmed by the rest of what we find in these two books *Against the Physicists*.

At the end of the account of bodies (9.440) the account of incorporeals is announced, and book 10 starts out by claiming that after the foregoing discussion of body and limits, criticizing both physicists and geometers, the investigation of place seems to follow next, 'for it is maintained by all of them with one accord that body either is contained in place or moves in place'. Here again, the connection is slightly strained, for 'all of them' cannot strictly speaking be taken to refer to physicists and geometers alike, the latter having as such no views on the emplacement of physical bodies. The concept of place is rather something that is connected with the

*physical* discussion of bodies, a subject that, as we saw, was hardly covered in the preceding section. Once again, Sextus is trying his best to suggest a systematic connection between topics which is narrower than is justified by the actual contents of what he presents.

The discussion of **place** (10.1–36), then, is justified by the claim that ‘all’ agree that bodies move in place or are contained in place. The discussion of **motion** (10.37–168) which then follows is naturally linked to the discussion of place, because motion is the type of change that involves place: it is change (*kineisthai*) in the sense of ‘change with regard to place’ (*kata topon kineisthai*, 10.36). The fact that place is said to have been ‘abolished’ in what precedes is apparently insufficient in itself to prove that there can be no satisfactory account of ‘change with regard to place’ either. Indeed even the fact that next to the notion of place also the notion of body has been established as problematic is not in itself sufficient to undermine the account of motion as motion of a body in place: it is given a separate refutation. What is more, the fact that motion is not just the motion of a body changing place but also occurs in time (10.169) is said to offer occasion for a separate discussion of **time** (10.169–247). Since, in its turn, the measurement of time involves number, the next subject for discussion is **number** (10.248–309). Yet, here we run into another oddity: the discussion of number which now follows does not treat it in the ordinary arithmetical sense in which number may be said to be connected with time or motion but instead embarks on a critical discussion of what we might call number metaphysics of a Pythagorean or Platonic bent. Here we have one more instance where the contents of a chapter do not match with its place within the structure of the overall argument of the book as suggested by Sextus. By now our initial suspicion that it is primarily the nature of the available source material which has determined the contents and much of the internal structure of his discussion seems hard to put aside.

The final section of *M* 10, on **coming-to-be and passing-away** (*M* 10.310–50) is introduced without any explicit linkage to what precedes, but such a linkage is provided later on, at 10.319–25. This time, however, we are not told that the discussion of coming-to-be and passing-away is in a sense *required* by the discussion of one or more concepts that preceded it. We are told, instead, that a discussion of coming-to-be and passing-away is in a sense made *superfluous* by what precedes, for ‘the main point has already been established by our previous arguments’ (10.319). After all, it is claimed, we have established the untenability of the notions of time, change (or motion), causes, subtraction and addition, and touch (apparently a reference to *M* 9.258ff.), all of which are necessary

to explain the notions of coming-to-be and passing-away. Nevertheless, the subject of coming-to-be and passing-away apparently deserves to be discussed in its own right, and this discussion of change in the most general sense (and as the central subject of physics) may even be said to crown books 9 and 10.<sup>27</sup> All the concepts that have been discussed previously are involved in attempts to deal with this final subject, and as a result the earlier discussions all contribute to demolishing the prospects of making philosophical sense of the notions of coming-to-be and passing-away.

We may conclude that the structure of *M* 9 and 10 in some respects offers a slightly haphazard aspect. In dealing with Diogenes Laertius 9 and its relation to its sources, Jonathan Barnes usefully distinguished two extreme views on how a writer like Diogenes should be positioned in relation to his source or sources.<sup>28</sup> On one extreme there is what Barnes calls 'naïve conservatism', according to which the work is in a strong sense the work of its author: Diogenes (in this case) is then taken to have read the relevant sources, made notes, organized his own ideas and then to have written his text. On the other hand, there is what may be labelled 'naïve radicalism', which holds that Diogenes simply copied out some earlier work or works. Of course various positions in between these extremes can be envisaged, and indeed Sextus as an author does seem to take up such an intermediate position. On the one hand, he seems to be conscious of the way in which his various topics hang together and of the fact that treating them as interconnected is philosophically justified. And, as we saw, he does try to impose some kind of general structure, which is meant to bring out these connections. On the other hand, the material on which he draws does not allow him to let these connections shine through as clearly as one would perhaps wish. Nor does he use his own conception of how the various topics hang together in order to have them eliminate each other, although there are some passages where this possibility is at least hinted at, as in the case of coming-to-be and passing-away.<sup>29</sup> Instead, it appears that the structure of what he found in his sources to a considerable degree co-determines the structure of his account. To a certain extent this also goes for the internal structure of the separate chapters. Why is it only in the case of the section on god that we are given a separate preliminary section on

<sup>27</sup> On the position of this last section and on its relation to earlier arguments in *M* 9 and 10, see Warren, in this volume, pp. 365–8. For a more sceptical view see Bett's contribution, pp. 140–3.

<sup>28</sup> Barnes 1992: 4258. <sup>29</sup> See La Sala 2005: 69.

the various views on how people acquired the relevant notion (i.e. 'god') in the first place (with accompanying refutation of all these views)? Presumably because Sextus' text here ultimately goes back to an Academic account, focusing on the theological discussions between Stoics and Academics, and for some Stoics the question 'how do people acquire the notion of god' was indeed a separate question in their theology, as Cicero's account in *On the Nature of the Gods* makes clear.<sup>30</sup> And why is the section on place the only one to start out with a separate section on the 'conception' (*noēsis*) of the subject at issue, namely place, which then turns out to be incomplete, because it does not cover the Aristotelian position? Because it allowed Sextus to integrate, en bloc, two sets of definitions from the doxographical tradition on how Stoics and Epicureans differentiated between the notions of place, void and space. All in all, it turns out to be a fair guess that it is primarily this strong dependence on the contents and structure of his sources that is responsible for what we called the rather haphazard impression *M* 9 and 10 make on the reader.

Sextus' own role in organizing his material seems to be definitely stronger in the counterpart to *M* 9 and 10 which we find in the first half of *PH* 3. There we start out with a more coherent section on causation – with subsections on efficient principles (*PH* 3.1), god as efficient cause par excellence (3.2–12), cause (3.13–16), causation (3.17–29) and material principles or 'elements', which must be either corporeal or incorporeal (3.30–7), and the 'inapprehensibility' of body (3.38–62, including as a rider a discussion of the inapprehensibility of incorporeals as such, 3.49–55, and a discussion of compound bodies as formed by contact, touch, mixture or blending, 3.56–62). Then we turn to change (3.63–118), with subsections on its subspecies locomotion (3.64–81), increase and decrease (3.82–4), subtraction and addition (3.85–96), transposition (3.97) and on wholes and parts (3.98–101), physical alteration (3.102–8) and coming-to-be and passing-away (3.109–14), but also on rest (3.115–18). Finally the text discusses the necessary conditions for change, namely place (3.119–35) and time (3.136–50), two incorporeals that apparently deserve a discussion in their own right apart from the general discussion of the inapprehensibility of incorporeals that has preceded, and number as a concomitant of time (3.151–67). The ordering of the subjects is thus more systematic – moving from kinds of causes to bodies and compounds of bodies to kinds of change to kinds of incorporeals – as is especially clear from the way in

<sup>30</sup> Cicero, *ND* 2.13–15 (on Cleanthes).

which the subjects ‘wholes and parts’, ‘motion’ and ‘coming-to-be and passing-away’ are grouped together as having to do with change, whereas we find them presented separately and relegated to different positions within the overall account in *M* 9 and 10.<sup>31</sup>

Once again, we may presume that these differences are to be traced back to the different natures of the two works: a set of *hupomnēmata* on the one hand, and a more or less concise *hupotupōsis* on the other. Clearly, the latter genre implies a stronger degree of authorial intervention than the former. On the other hand, we may expect the former genre to offer a fuller range of materials at the micro-level, which in many cases is what *M* 9 and 10 in fact provide.

### Sceptical strategies in the individual chapters

Also if one takes a look at the individual chapters of *M* 9 and 10, one is at first sight struck by the rather haphazard and non-uniform way in which these have been patched together, especially if one examines them against the background of the programmatic remarks offered in *PH* 1 on the Pyrrhonist’s ‘method’.<sup>32</sup> On closer view, however, a more nuanced picture appears to emerge. On the one hand, Sextus’ programmatic ‘instructions’ in *PH* 1 turn out to leave the Pyrrhonist with more freedom than the familiar ‘showcase’ examples of Pyrrhonism might seem to suggest. On the other hand, precisely by studying *M* 9 and 10 as a whole, as this volume allows us to do, we may be able to detect some underlying patterns and to clarify what goes on in one chapter by comparing it with what happens in others.

Let us first have a closer look at the way in which *PH* 1 characterizes the practice of Pyrrhonian scepticism:

Scepticism is an ability to oppose (*dunamis antithetikē*) appearances (*phainomena*) and judgments (*nooumena*) in any way whatsoever, with the result that, owing to the equipollence (*isostheneia*) of the items and accounts thus opposed, we are brought first to a state of mental suspense (*epochē*) and next to a state of tranquillity (*ataraxia*). (*PH* 1.8)

This offers a clear general framework, and some further details provided by Sextus in his general account (*katholou logos*) of the nature of the ‘sceptic way of life’ (*skeptikē agōgē*) in *PH* 1 may help us to add a few finer shades.

<sup>31</sup> For a more detailed comparison of *M* 9 and 10 and the relevant sections of *PH* 3, see Bett, in this volume, pp. 40–3.

<sup>32</sup> See the introduction to Bett’s contribution to this volume, pp. 33–4.

The first of these concerns the kinds of ‘things’ that may be selected to create the initial opposition. How is a Pyrrhonist supposed to construct his ‘opposed accounts’? First of all, they may indeed be contradictory. However, this need not be the case:

The phrase ‘opposed accounts’ (*machomenoi logoi*) we do not necessarily employ in the sense of affirmation and negation, but we take it simply in the sense of ‘conflicting accounts’. (*PH* 1.10)

Secondly, as the above quotation from *PH* 1.8 has already suggested, the ‘opposed accounts’ may be either phenomenal or theoretical in character:

We oppose what appears (*phainomena*) to what appears, or what is thought of (*nooumena*) to what is thought of, or crosswise. (*PH* 1.31)

Thirdly, Sextus himself makes clear that we should not unduly focus on opposing *arguments* in any strict sense of the term:

When we say that to every account (*logos*) an equal account is opposed . . . we use the word ‘account’ not without qualification, but as something which establishes something dogmatically (i.e. concerning the non-evident) and establishes it not necessarily by means of premises and a conclusion, but howsoever it might. (*PH* 202)

If we now turn to the way in which the various sections of *M* 9 and 10 are structured, we may note, first, that opposed viewpoints do indeed constitute the core of the sceptical arguments set up by Sextus. Simple cases of conflicting *appearances* (the same tower appearing round from a distance and square from nearby, etc.) are of course not what we expect to find in a discussion devoted to what we might call the *principia physica*. Instead in most cases (god, cause, body, coming-to-be and passing-away) what we get is the opposition of things thought and other things thought. In two cases (where the existence of place and motion is at issue) the *pro* considerations can be seen either to articulate (place) or simply to represent (motion) the evidence of the *phainomena*, so that in these cases we are actually dealing with *phainomena* being opposed to *nooumena*.<sup>33</sup> In two other cases (parts and wholes, time) the *pro* side is completely missing, so that we are not given an explicit opposition at all.

Secondly, in various chapters we find the opposition between contradictory theses (*p* or not-*p*) as an explicit organizing principle: thus the

<sup>33</sup> In the case of place this is not made explicit but can be inferred from the fact that the arguments here supporting its existence (*M* 10.7–12) are in the parallel version of *PH* 3.120–1 called arguments from *enargeia* (see Algra, in this volume, pp. 187–94). In the case of motion, *enargeia* is explicitly invoked at *M* 10.66–9.



chapter on god first claims that ‘of those who have inquired into the reality of god, some say that there is a god, some that there is not, and some that there no more is than is not’ (*M* 9.50), and the ensuing discussion consists of arguments for the existence of the gods (*M* 9.60–136) followed by arguments against the existence of gods (*M* 9.137–8). A comparable structure can be found in the first part of the chapter on cause,<sup>34</sup> and in the chapters on place and motion.<sup>35</sup> Even in those cases (wholes and parts, time) where the positive part (i.e. material in support of the existence of *x*) is missing, the way in which matters are presented still suggests that what is at stake is the existence versus non-existence of the item at issue, as is clear from such conclusions as ‘it is left to say . . . that time does not exist’ (*M* 10.214) or ‘if so, it must be said that nothing is a whole; from which it follows that part does not exist either’ (*M* 9.357).

On the fact that such negative conclusions appear to be *dogmatic*, and as such at first sight unacceptable to a true Pyrrhonist, more will be said below. Here we may focus on another surprising aspect, namely the fact that they concern *existence*. Sextus’ scepticism is often, and rightly, said to be essential rather than existential in nature. After all, it is the dogmatists’ attempts to show us the real *nature* of things that constitute his primary target; he is not out to make us doubt the very existence of the external world. On closer view, however, the critical practice of *M* 9 and 10 appears to remain within the boundaries of Sextus’ typical brand of essential scepticism. First, in most cases the critical arguments which we are offered do not take the form of straightforward arguments against the existence of *x* (where *x* stands for time, place, etc.) but of arguments serving to show that the dogmatists’ attempts to define or explain the *nature* of *x* are all inconclusive. So, essential scepticism remains the backbone of the argumentative structure.<sup>36</sup> Also, as

<sup>34</sup> *M* 9.195 distinguishes those who say that there is such a thing as cause, those who deny it, and those who suspend judgment; arguments *pro* are then given in *M* 9.197–206, arguments *contra* in 9.207–57.

<sup>35</sup> The structure of the section on place is slightly more complex: after providing a more or less self-contained set of (Stoic and Epicurean) definitions of spatial terms and the way in which they interrelate (10.1–5), the text proceeds in what are actually *two* sceptical ‘waves’: first arguments for the *existence* of place are given (10.6–12) and *countered* (10.12–19); next we are given arguments *against* two particular *conceptions* of place, viz. place as a surrounding something (10.19–23) and place as a container (10.24–36), with no materials being adduced on the positive side apart from the definitions of these two conceptions. In the section on motion (*M* 10.45–9) we return to the same structure as we witnessed in the section on cause (see the [previous note](#)), with three positions being mentioned: that motion exists, that it does not exist, and suspension of judgment; the case *pro* (10.66–9) is then followed by the case *contra* (10.70–168).

<sup>36</sup> On this way of arguing on the negative side on the basis of the item’s supposed essence or conception, see the explicit programmatic statement at *M* 10.50 (from the chapter on motion): ‘After this we will introduce the first objections as we argue for there not being motion, by

we will see in the next section of this Introduction, the conclusion that ‘*x* does not exist’ should not be read in an absolute but in a qualified sense – as ‘*x* does not exist in the sense accorded to it by accounts just examined’ – so that no strong form of existential scepticism is implied. The reason why Sextus nevertheless sticks to the existential framing of his critical conclusions may well be that they are often supposed to be matched, whether explicitly or implicitly, by positive conclusions on the basis of *enargeia* on the other side of the balance: such considerations of *enargeia* usually do not concern the *nature* of *x*, but merely its *existence*, and that may well have determined the form of the counter-arguments as well.

Finally, Sextus’ actual practice confirms the suggestion in *PH* 1 that the opposed ‘accounts’ need not be *arguments*. True, in these two books *arguments*, as assembled by the sceptics against the dogmatist positions, are basically what we are given on the negative side. These counter-arguments may sometimes go back to the interscholastic debates of the dogmatists themselves, but they are largely taken, we may suppose, from the arsenals of the earlier sceptical tradition (on which see below, pp. 30–2), although we cannot of course exclude the possibility that some of them are devised by Sextus himself. On the positive side, however, we may be given either arguments proper, or simply an appeal to *enargeia*, or the articulations of *enargeia* in the form of arguments or definitions, or a straightforward account or exposition of a theory (such as the Pythagorean account of number and its cosmological role in *M* 10.248–84).<sup>37</sup> Sextus’ choice for a specific type of account on the *pro* side will in each case no doubt owe something to the available evidence – we are dealing with the presentation of the case of the dogmatists. In addition, different subjects allow different types of accounts. In discussing the existence and nature of god, cause and number, it is perhaps less viable to point to *enargeia* than it is in the case of motion or place (or even time, where the existence seems obvious, but the attempt to determine its

concentrating on the conception of motion.’ Or (from the chapter on body): ‘Let us lead off with the arguments about body, taking the starting point of our inquiry (τὴν ἀρχὴν τῆς σκέψεως) from its conception’ (*M* 9.366).

<sup>37</sup> This means that ‘opposing accounts’ is a better, because more neutral, translation for *machomenoi logoi* than ‘opposing arguments’. On this use of *logos* as ‘account’ rather than ‘argument’ one may compare the not dissimilar context of the part of Plato’s *Theaetetus* where the discussion turns on the definition of knowledge as ‘true belief with an account’, and where the context suggests that the ‘account’ (*logos*) we should think of answers a question of the type ‘what is *x*’ rather than a question of the type ‘on what grounds do you believe that *p*’ (on which see Burnyeat 1980b: 134).

nature notoriously difficult), so that in the former cases arguments (god, cause) or an outline account (number) are rather what we expect to find, and what we do in fact find.

All this may be taken to indicate that, despite the difference in surface structure,<sup>38</sup> the chapters of *M* 9 and 10 do appear to reveal a deep structure that seems to conform to the injunctions of *PH* 1. The use of existential language confirms that the issue is in general couched in the form of an opposition concerning the existence or non-existence of *x*, where *x* is one of the *principia physica* that together form the subject matter of *Against the Physicists*. The ‘accounts’ (*logoi*) that are being opposed can be arguments proper, but also theoretical accounts or definitions, or they may offer the *enargeia* of *phainomena*. On the *pro* side we may be given either ‘appearances’ (*phainomena*) or theoretical accounts, that is, ‘things thought’ (*nooumena*) by the dogmatists. On the *contra* side we have the defusing arguments of the sceptic (hence, also *nooumena*). Indeed, because the material on the *pro* side is already extant in the accounts of the dogmatists, we sometimes see Sextus arguing as if the sceptic’s task is merely to provide the critical arguments on the *contra* side – or as he puts it at the beginning of *Against the Physicists*, to offer ‘a counter-argument against everything’ (*M* 9.3) – rather than to oppose the two accounts and thus induce suspension of judgment.<sup>39</sup> However, the tension between these two perspectives is only apparent. In advocating suspension of belief, Sextus is describing the sceptic’s eventual philosophical *stance* on a particular issue. In advocating ‘offering counter-arguments against everything’, he is describing the sceptic’s *procedure* of producing the ‘opposed accounts’ by assembling the required critical material against the positive views of the dogmatists.<sup>40</sup> It should perhaps not surprise us that the latter perspective is predominant in a text such as *Against the Physicists*, which, as we noted, should primarily be seen as a kind of storehouse of sceptical ammunition. One suspects, moreover, that it is also the latter conception of the primacy of the destructive task of the sceptic that is responsible for the occasional ‘elliptical’ way of presenting things, with the *pro* side missing or being

<sup>38</sup> Next to cases where contradictory claims are explicitly opposed (‘that *x* exists’ versus ‘that *x* does not exist’; plus arguments on both sides; see the section on god), or cases where the evidence (*enargeia*) of the commonsense view that *x* exists is put up against a list of different views (*diaphōnia*) on what it is (as in the section on motion), we find cases where we get only a sceptical attack on a number of views on the nature of *x* (as the section on time).

<sup>39</sup> See, for example, *M* 10.50: ‘... as we argue for there not being motion’.

<sup>40</sup> For an explanation along similar lines, see Bailey 2002: 127–8. For a different explanation see Bett 2012: 90, n. 27 and xx–xxiv, who suggests that we are dealing with the traces of different stages of the Pyrrhonist tradition.

present only implicitly (for example where the definitions attacked on the *contra* side may be taken to articulate some sort of *enargeia* on the *pro* side which is itself left unmentioned).

Of course invoking things that are *implicitly* present in a text has its dangers, and the above reconstruction does in fact require a modicum of charity, especially where *Against the Physicists* offers so few explicit clues on how the destructive side of the account needs to be read. As a result, the conclusions on the negative side (of the kind ‘that *x* does not exist’) often strike readers both as abrupt instances of *non sequitur* and as surprisingly negative for a Pyrrhonist, and it should be acknowledged that scholars have accordingly been tempted to look for different explanations from the one here offered, and to regard such conclusions as remnants of an earlier stage of Pyrrhonism or simply as an indication that Sextus’ account is in some places a mess.<sup>41</sup> It may therefore be rewarding to have a closer look at the nature of the negative conclusions in Sextus.

### Negative conclusions and suspension of judgment

In principle the problem appears to be clear. We may recall that the programmatic statement of *PH* 1.8 claims that the sceptic’s ability to set up opposed accounts is an ability ‘by which, because of the equipollence of the opposed objects and accounts, we come first to suspension of judgment (*epochē*) and afterwards to tranquillity (*ataraxia*)’. As a matter of fact, however, the only section in *M* 9 and 10 to present a really neat example of the procedure of getting from opposed accounts directly to suspension of judgment is the section on god. In the sections on cause and body we get a conclusion which is at least very similar in that it refers to some sort of *aporia* (‘impasse’) or an ‘account which leads us nowhere’ (*logos aporos*).<sup>42</sup> But elsewhere, as we saw, we are presented with conclusions that may at first sight surprise, because they seem to go *beyond* suspension of judgment. At the end of the section on place, place is said to ‘have been done away with’. In the course of the discussion of time, it is more than once concluded that ‘time does not exist’ or that ‘time is nothing’.<sup>43</sup> The section on number concludes that ‘number does not exist’

<sup>41</sup> See the contributions of Bett and Bobzien to this volume for a more critical evaluation of Sextus’ procedure.

<sup>42</sup> *M* 9.330 (terminology of *aporia* on active and passive cause); 440 (*logos aporos* on body).

<sup>43</sup> For a careful analysis of the way in which time is discussed in *PH* 3 and in *M* 10, see Bobzien, in this volume, pp. 275–92.

and the section on coming-to-be and passing-away concludes that ‘nothing comes to be or passes away’. At first sight these conclusions indeed smack of negative dogmatism, so that we may well ask whether they constitute the kinds of conclusions a Pyrrhonist is entitled to draw at all.<sup>44</sup>

It can be argued, however that Sextus’ procedure is less crude than it might at first blush appear to be. First, a closer look at the way in which these apparently dogmatic conclusions are embedded within the overall argumentative context of the relevant chapters suggests that they should not be taken at face value. Thus the section on body concludes its elaborate investigation by claiming that (a) ‘if it [i.e. body] is neither sensible nor intelligible, and besides these there is no other alternative, one must declare that body is nothing (*mēden einai to sōma*)’ (9.439). But the text goes on to conclude that (b) ‘the account given of bodies has been shown by these arguments to lead us nowhere (*ho peri tōn sōmatōn logos pepēnen aporos*)’ (9.440). The suggestion is clearly that (b) should be read as a qualification of (a): body turns out to be nothing *in so far as* we follow the available theories (‘the account given of bodies’) about it, for these theories lead us nowhere. This still leaves open the possibility that the final conclusion will be that we have other (unstated) arguments in favour of the existence of bodies (e.g. the evidence of the senses, or *enargeia*), so that we end up with suspension of judgment after all. In other words, it is very well possible to read this section as offering a sketchy and elliptical version of the proper Pyrrhonian procedure, one that concentrates on the arguments *contra* the dogmatic views.

Such a reconstruction seems to gain support from the section on motion where the claim ‘there is no motion’ (*M* 10.168) is followed by the claim that we should hence suspend judgment, ‘because of the equipollence of the sense-evidence (*enargeia*) and of the arguments which contradict it’ (*M* 10.168).<sup>45</sup> So here the claim ‘there is no motion’ is not a final conclusion in a spirit of negative dogmatism but represents one side of the sceptical balance, a conclusion that is valid only *in so far as the arguments are concerned*. The section on place seems to point in the same direction, for there Sextus initially describes his procedure as aiming at suspension of judgment (*M* 10.6), whereas he concludes his account (*M* 10.36) by claiming that ‘we have abolished place’. Clearly these two claims are intended to be compatible.<sup>46</sup> Also elsewhere in Sextus we find examples

<sup>44</sup> See the discussions by Bett and Bobzien, in this volume, pp. 37–40 and 276–92.

<sup>45</sup> But see Bobzien, in this volume, pp. 276–92.

<sup>46</sup> On which see Algra, in this volume, pp. 210–11.

of this *Nebeneinander* of the language of suspension and equipollence on the one hand, and conclusions to the non-existence of a particular object or skill on the other.<sup>47</sup>

It has been argued that such intimations of negative dogmatism are due to Sextus' sources and that these sources represent an earlier phase of Pyrrhonism, of which we also find traces in the account provided by Diogenes Laertius 9, which apparently condoned such one-sided negative conclusions.<sup>48</sup> This may well be true, as it may also be true that we can detect a difference here between *M* and *PH*, and that the latter work is in general more careful in explicitly opposing the arguments which lead us to conclude that *x* does not exist to other considerations (usually linked with *enargeia* or the evidence of sensation or common sense) which draw us in the opposite direction. In such cases it is more immediately evident that statements of the kind '*x* does not exist' are only *apparently* instances of negative dogmatism, and that the claim that *x* does not exist is equivalent to saying that the 'physical theory of the dogmatists about it is inconceivable' (*PH* 3.62) or that *x* is inapprehensible (*akatalēpton*), or unthinkable (*anepinoēton*) or impossible (*adunaton*) on that theory.

It is far from clear, however, how significant these differences between *PH* and *M* are. First of all, we have just seen that there are a number of indications that the Sextus of *M* 9 and 10 believed the relevant passages to be compatible with other passages which more clearly represent his own preferred brand of Pyrrhonism (including suspension of judgment as a conclusion), and there is nothing to indicate that he was at any point in any strong sense committed to a form of negative dogmatic conclusions. Secondly, even in *PH* we find cases where the positive half of the diptych, so to speak, is missing.<sup>49</sup> This means that the differences in this respect between *PH* and *M* seem to be gradual rather than radical.<sup>50</sup>

<sup>47</sup> Thus the first six books of *M* contain many examples of apparent negative dogmatism in their conclusions against the liberal arts, yet the whole project is introduced in *M* 1.1–6 as being concerned with suspension of judgment. See Blank 1998: liv–lv and Spinelli 2010: 253–9.

<sup>48</sup> See Bett's contribution to this volume, pp. 36–40. See also Bobzien, in this volume, pp. 276–92; and Barnes 1992: 4252–3.

<sup>49</sup> See the conclusion of *PH* 3.99 'Therefore no whole exists'; or the introduction of the section on physical change at 3.102: 'Some too maintain that what is called physical change is non-real, and the arguments they employ are such as these.' No arguments *pro* are provided. The whole section is exclusively negative. See also Barnes 1992: 4252, with n. 58 for further examples from *PH*.

<sup>50</sup> The only thing which we find in *M* but *not* in *PH*, it seems, is the use of the first-person plural of the verb ἀναρπῆν ('to abolish'/'to do away with'); see Janáček 1972: 55; Bett 2005: xxix; and Bett, in this volume, pp. 37–40. But, given the other considerations offered in the present context, it is not immediately clear what conclusions should be drawn from this particular difference.

And even if we admit that the composition of *M* is in general less achieved in so far as it contains a larger number of such 'elliptical' presentations, it is not clear that this should be ascribed to a development in Sextus' style of thinking. They may also be due to the different nature of the two works. After all, also on the assumption that the passages suggesting some form of negative dogmatism will be mainly due to his scissors-and-paste copying from earlier Pyrrhonian sources, we are more likely to find them in *M*, which is more of a storehouse of sceptical arguments, than in *PH*, which in general shows a higher degree of authorial intervention.

Finally, a general point about the use of phrases that may seem to indicate a commitment to negative dogmatism may be in order here. In *PH* 1.187–209 Sextus famously discusses a number of sceptic expressions and formulae and the way in which they should and should not be taken. Among them are expressions which at first sight may appear to be dogmatic in character, such as 'all things are undetermined' (1.198–9). 'All things' should here be read, we are told, as 'such of the non-evident things investigated by the dogmatist as I have examined' and 'are' should be read as 'appear to me'. At *PH* 1.206 he claims that the list of expressions he has just given is not exhaustive and that 'it is possible to explain the rest by deduction from the foregoing'. We may then perhaps assume – and it certainly would seem to fit in with the interpretation just given – that a conclusion like 'time does not exist' is, at least in the context of the sceptic's dialectical investigation, meant to be taken as 'time in so far as it has been investigated by the dogmatists whose views I have examined appears to me not to exist', thus conveying something that at a certain point (as the conclusion of his dialectical investigation) appears to the sceptic, an appearance to which either immediately or at some later point a conflicting appearance (for example one conveying the *enargeia* of time) may be opposed, which will then induce the sceptic's suspension of judgment. The conclusion can thus be read as (implicitly) provisional and qualified and need not straightforwardly be taken as an instance of negative dogmatism. Rather than something that goes *beyond* suspension of judgment, it may be regarded as part of the procedure that leads up to it.

### Types of arguments

The critical arguments Sextus offers on the *contra* side basically come in two types. He sometimes refers to the first type as 'primary in order'

(*probēgoumenon* or *probēgoumenōs*),<sup>51</sup> but in some contexts they can also be labelled as ‘more general’, in the sense of applying not to any particular conception of cause, place, time, and so on, but to *any* conception of it (*PH* 3.134; *M* 9.258).<sup>52</sup> These arguments have a recognizably dilemmatic structure, discussing, for example, the main properties of time *directly* in one complex argument (‘if time exists, it is either *a* or *b*, but if it is *a*, it must be either *x* or *y*, etc.’), where the variables *a*, *b*, *x*, *y*, etc. stand for pairs of mutually exclusive general properties such as ‘corporeal’, ‘incorporeal’, ‘extended’, ‘unextended’. These arguments then show that each time both horns of the dilemma (i.e. both opposite characteristics *a*, *b* or *x*, *y*) are ruled out, and as a result the antecedent of the conditional (e.g. ‘time exists’) is ruled out as well. Sometimes Sextus (or his Pyrrhonist source) adds in an extra element of parsimony by tarring two dogmatic concepts with the same general brush, for example where he eliminates both the active and the passive principles by eliminating the concept of touch by which they are connected.<sup>53</sup> To a modern reader, and perhaps also to an ancient reader, these ‘primary’ arguments may often seem boring and mechanical, but they do have a certain persuasive force conveyed by their apparent exhaustiveness. This may well be why Sextus at one point refers to this type of argument as ‘deducing the point at issue in a powerful way’.<sup>54</sup>

The other main type of argument proceeds in a more properly dialectical way in taking the tenets and arguments of specific dogmatic philosophers as their starting point. In the section on place in *PH* 3 this type of argument is distinguished from the more general (‘primary’) ones as ‘more varied’ (*poikilōteron*).<sup>55</sup> These ‘more varied’ arguments may at first sight seem structurally similar to the ‘primary’ arguments, for they may be reconstructed as starting from such premises as ‘if time exists, it is either

<sup>51</sup> See *M* 9.390, 418; 10.189, 326. At *M* 1.1, in the introductory section to *Against the Logicians*, the term *probēgoumenōs* in the sense of ‘primary’ is used to denote the *direct* description of the characteristic of scepticism as opposed to comparing it with ‘the philosophies which stand next to it’.

<sup>52</sup> On this type of argument, see Bobzien, in this volume, pp. 280–2; Betegh, in this volume, pp. 147–52.

<sup>53</sup> *M* 9.258. <sup>54</sup> *M* 9.437: σθεναρῶς συνάγοντα τὸ προκείμενον.

<sup>55</sup> *PH* 3.123 with Algra, in this volume, pp. 187–9. It may be that Sextus has this distinction between this second type of more dialectical argument (parasitic, so to speak, on the particular definitions and arguments of the dogmatists) and the first type of more general argument in mind when he claims, *M* 9.12, that he will sometimes argue *dogmatikōs* concerning god (where *dogmatikōs* should then not be taken to mean ‘dogmatically’, but ‘on the basis of (specific) *dogmata*’) and at other times *aporētikōteron* for the non-existence of *anything* active or passive. After all, most of the arguments against the existence of god are dialectical in nature, although there are some more general arguments here as well, whereas the section arguing against (active) cause and what is affected (*M*. 9.207–76) primarily offers arguments of a more general nature. But see Bett’s contribution to this volume, pp. 41–2.



*a* or *b* or *c*, etc.’ However, *a*, *b*, *c*, etc. now no longer stand for a supposedly exhaustive list of mutually exclusive properties, but for definitions offered by individual philosophers. As a rule the first premise of the underlying hypothetical syllogism is not stated explicitly, whereas there is no guarantee that the list of options discussed is indeed exhaustive. As a consequence, such arguments are strictly speaking neither valid nor sound.<sup>56</sup> But here we should recall that Sextus’ exposition on the vocabulary used by the Pyrrhonists in *PH* 1 specifies that apparently unqualified negative conclusions (such as ‘all things are undetermined’) should in fact always be taken with the rider that the conclusions apply only to ‘such of the non-evident matters investigated by the dogmatists as the sceptic has in fact examined’ (*PH* 1.198). As we saw, this means that a conclusion like ‘time does not exist’ in the context of Sextus’ work may be taken to mean: ‘it does not exist in the sense stipulated by the theories we have examined’. At a more general level we may perhaps add that a Pyrrhonian conclusion is always provisional: the sceptic will go on searching and he never as a matter of principle excludes the possibility that other and better theories can be found or may come up.<sup>57</sup> In the meantime, such negative conclusions as may result from his dialectical investigations, however provisional, may still have a certain persuasive force: if the best philosophers are unable to come up with an unproblematic definition of, say, time, we are perhaps entitled to conclude that we should at least for the moment despair of finding such a thing.

At the same time, all this may serve to show that the persuasive force of the sceptic’s negative arguments may differ considerably. In this connection we may recall that Sextus himself refers to the other type of argument (the ‘primary’ arguments) as ‘powerful’.<sup>58</sup> We may perhaps infer that he (rightly) thought of these ‘more varied’ dialectical arguments as less forceful by themselves. Perhaps we may even connect these kinds of difference in persuasive force with the notorious claim, made in *PH* 3.280–1, that the sceptic will use arguments of various strengths, according to whether his opponents are more or less affected by the disease of

<sup>56</sup> See Bobzien, in this volume (p. 279), on this aspect of the arguments concerning time.

<sup>57</sup> This is also clear from Sextus’ repeated claim that typical sceptical utterances about *aphasia* (‘non-assertion’), suspension of judgment, or non-apprehension are always to be understood with the rider ‘now’, or ‘for the moment’: νῦν, ὅτε προφερόμεθα αὐτήν (about *aphasia*, *PH* 1.193); τὸ φαινόμενον ὅτε ἡμῖν ὑποπίπτει (about suspension, 1.196); ὡς πρὸς τὸ παρόν (about non-apprehension, 1.201). On the connection between suspension of judgment and ongoing searching (*zētesis*), see *PH* 1.104–205.

<sup>58</sup> See above, n. 54.

dogmatism.<sup>59</sup> In that case we need not take the latter claim to refer to the ‘indiscriminate use of good and bad arguments’, nor as implying that ‘scepticism as a therapeutical procedure takes advantage of *any* means in order to liberate people from the burden of their own fixed, intolerant and a-critical beliefs’.<sup>60</sup> It may simply mean that in many circumstances, and for all practical purposes, the less rigid procedure of dialectically defusing the available dogmatic positions – or even a well-chosen subclass of the available dogmatic positions – will be sufficient to induce suspension of judgment. After all, suspension of judgment does not appear to be something we logically *conclude* to, but it is rather a *condition* which is, so to speak, supervenient on the investigation we have been undertaking.<sup>61</sup> Anyway, it is the fact that Sextus’ procedure often seems to be incomplete – not all relevant theories may be reviewed, not every argument is successfully countered – that sometimes induces modern readers to think of it as psychological or even rhetorical (in the sense of aiming at persuasion), rather than properly philosophical (in the sense of aiming at sound conclusions) in nature.<sup>62</sup>

### The scope of Sextus’ scepticism

So much for the question of to what extent *Against the Physicists* displays Sextus’ general strategy of opposing accounts and to what extent the conclusions he draws can be understood and accepted from the general point of view of Pyrrhonism. Another question which has received quite some attention in the scholarly literature concerns the scope of Sextus’ scepticism: does the practice of setting up opposing accounts leading to suspension of judgment apply to each and every subject? Ordinary life certainly demands that we entertain views about many things which we may use as a standard of action. Sextus explicitly makes room for such

<sup>59</sup> In that case we should interpret the term ‘arguments’ there not as referring to individual arguments (dealing with individual philosophers or tenets) but with strings of arguments constituting a whole section or part of a section. Note that however we interpret this final passage of *PH* 3, there is no need to take it as being concerned with ‘bad’ arguments. It merely speaks of arguments of different weight in terms of persuasiveness (*piṭhanotēs*) or probability. One finds it hard to go along with Mates 1996: 314, who arbitrarily rules that ‘it seems to me quite obvious that these two final sections, with their odd and silly claim that weak arguments have been included for the benefit of those who do not need strong arguments, are not genuine but have been tacked on by someone during the long twelve centuries between Sextus and our earliest MSS’.

<sup>60</sup> Floridi 2002: 8. On the rhetorical or psychological aspects of Sextus’ procedure, see White, in this volume, pp. 74–6.

<sup>61</sup> See Hankinson 1995: 298–9. <sup>62</sup> See White, in this volume, pp. 74–6.

views in the everyday context of what he calls the ‘conduct of life’ (*biōtikē tērēsis*) of the sceptic:

Adhering, then, to appearances we live in accordance with the normal rules of life, undogmatically (*adoxastōs*), seeing that we cannot remain wholly inactive. And it would seem that this regulation of life is fourfold, and that one part of it lies in the guidance of nature, another in the constraint of the passions, another in the tradition of laws and customs, another in the instruction of the arts. Nature’s guidance is that by which we are naturally capable of sensation and thought; constraint of the passions is that whereby hunger drives us to food and thirst to drink; tradition of customs and laws, that whereby we regard piety in the conduct of life as good, but impiety as bad; instruction of the arts, that whereby we are not inactive in such arts as we adopt. But we make all these statements undogmatically. (*PH* 1.23–4)

So in order to get along in ordinary life the sceptic will entertain some non-committal (he is said to hold them ‘undogmatically’) views in these four areas. Can such views count as beliefs of some sort? And if so, how do they differ from the kinds of belief the sceptic is not supposed to have, in areas where his attitude is supposed to be the attitude of creating opposing accounts and suspending judgment? Is the difference one between various classes of objects (e.g. the demands of ‘ordinary life’ versus the objects of ‘science’ or ‘philosophy’)? Or are we rather dealing with different epistemological stances (different kinds or levels of belief) towards the same objects or questions (e.g. non-committal beliefs versus theoretically argued beliefs)? The debate about these issues, and about how we should as a consequence envisage the differences between ancient and modern scepticism, has been complicated and wide-ranging, and there is no need to trace its intricacies in the context of this introduction.<sup>63</sup> Nor is it to be expected that this volume, or the text of *Against the Physicists* will give definitive answers to the relevant philosophical questions. Nevertheless the text does contain some examples that should be taken into account by anyone discussing the scope of Sextus’ scepticism, and some of the relevant questions accordingly crop up in some of the contributions to this volume.

Thus, we encounter various examples of ways in which a sceptic can go along with the *enargeia* of particular phenomena, without any strong form of epistemic commitment.<sup>64</sup> Thus, the chapter on motion suggests that although a Pyrrhonist at the theoretical level suspends judgment on the

<sup>63</sup> Some of the most important contributions have been printed together in Burnyeat & Frede 1997. For a convenient survey of the debate and the positions involved, see La Sala 2005.

<sup>64</sup> It is what at *PH* 1.13 is called τὸ εὐδοκεῖν τινὶ πράγματι, a broad sense of ‘approval’ or ‘assent’, which basically involves a non-committal form of ‘going along’.

otherwise evident phenomenon of motion, because its very evidence is counterbalanced by theoretical considerations showing that any attempt to define motion fails, he may for everyday purposes follow this evidence without any theoretical commitment as a matter of following 'life' (*bios*), which in this case means, in the words of *PH* 1.23 (quoted above): the 'guidance of nature'.<sup>65</sup> We may perhaps connect this difference with what Sextus elsewhere has to say about the sense in which the sceptic does and does not have a 'doctrine' or 'doctrinal rule' (*hairesis*). A sceptic does *not* have a doctrine, he claims, if by this we mean 'adherence to a number of dogmas which are dependent both on one another and on appearances' (*PH* 1.16–17). But, he adds in the same context, 'we do follow a line of reasoning which, in accordance with appearances, points to a life conformable to the customs of our country and its laws and institutions, and to our own feelings (*pathē*)'. This suggests a particular way in which a Pyrrhonist may accept the *enargeia* of appearances: he may do so as long as he refrains from integrating them in any broader web of beliefs, that is, he should, on the one hand, not support the evidence of *enargeia* with arguments, nor should he, on the other, use this *enargeia* itself as a basis for any kind of further inference or theorizing. This, apparently, is what his non-committal (*adoxastōs*) way of following appearances should amount to.

In the chapter on place Sextus puts some additional flesh on the bones of the relevant distinction by arguing that there is a 'broad' and non-technical use of the concept of place – as in 'Socrates is in Athens' – that is acceptable for the sceptic, precisely because, and in so far as, it is *uncontroversial* (*homologon*); as such, we may add, it *need* not be defended by any form of argument.<sup>66</sup> So here again we may follow 'life' without making any theoretical presuppositions. As soon, however, as we try to translate this 'broad' conception of place into a more precisely circumscribed conception, the sceptic machinery of constructing opposing accounts and inducing suspension of judgment inevitably starts doing its critical work.

It is from this same perspective, presumably, that we should also interpret what is being said about the conception of god. The chapter on god in *Against the Physicists* offers us an instance of what *PH* 1.23 labels following 'tradition of customs and laws'. That is: although Sextus naturally advocates suspension of judgment about theoretical accounts of the existence and nature of the gods, he at the same time enjoins us to go along

<sup>65</sup> See on this Hankinson, in this volume, pp. 263–6.

<sup>66</sup> See the final section of Algra's contribution to this volume, pp. 210–16.

with everyday religious practice. Whether this in the end amounts to a coherent position is controversial. On the one hand, it may be argued that even the cult-oriented religions of the Greeks and Romans involved some beliefs about the existence, origin, nature and behaviour of the gods, and it is not immediately clear why these beliefs would be less vulnerable to the critical procedure of creating opposite accounts resulting in suspension of judgment than the theological beliefs of the dogmatic philosophers. Indeed, in the same context (*M* 9.192) Sextus himself does in fact describe the religious views of ordinary people as mutually opposing and as such inducing suspension of judgment.<sup>67</sup>

On the other hand, the analogy with the cases of motion and place – or indeed with the way in which the Pyrrhonist can say non-committally (*adoxastōs*) that ‘honey is (i.e. appears to me) sweet’ – may offer some help. The idea may well be that the sceptic’s ‘going along’ with the tradition (presumably what is meant here is: *a* tradition, i.e. his *own* particular tradition) is in a similar way non-committal. In other words, the Sextan sceptic does not thereby necessarily accept this tradition in the same way as do ordinary religious ‘believers’, who may well have views about what these gods *really* are, or supposed evidence for their existence (for example the way in which they supposedly have reacted to prayers or sacrifices), or reasons to assume that their gods are superior to the gods of other civilizations. Instead, he will adopt a more non-committal stance with a pretty minimal commitment.<sup>68</sup> This appears to be a coherent position, although we may have some doubts whether it is a viable one in practice. Perhaps it is supposed to work only in so far as and as long as the tradition itself remains uncontroversial (compare the case of the conception of

<sup>67</sup> For a critical discussion see Bett’s contribution to this volume, pp. 52–66.

<sup>68</sup> Note that according to *M* 9.49 the only things the sceptic is supposed to do, ‘in line with ancestral customs and laws’, is (1) to ‘say that there are gods’ (according to *PH* 3.2 also, *adoxastōs*, that they are provident) and (2) to ‘do everything that tends to worship of and reverence towards them’. Of these (1) in fact appears to be uncontroversial among ordinary people (according to *M* 9.61 they share the preconception of the divine existence, even if they have different views as to its nature; the element of providence may be thought to be presupposed by the very phenomenon of religious cult itself), whereas (2) asks for only a minimal and relatively non-committal subscription to the religious views of the relevant community as a whole, not to the idiosyncratic beliefs of individual believers. On the other hand, the *diaphōnia* among ordinary people to which Sextus refers at the end of the chapter on god (*M* 9.192: ‘different people have different and discordant suppositions about them’) does not appear to concern the existence of the gods as such, but their nature, and may be thought to concern stronger views on the divine nature – e.g. that the gods of the Greeks are real whereas those of the Egyptians are not – than the bare minimum required by the tradition and accepted by the sceptic. There is no reason why ‘following the tradition’ should have to mean ‘following *all* (divergent) traditions’, nor need it involve sharing in all respects the actual beliefs of all ordinary people. So there is perhaps no need to see *M* 9.42 and 9.192 as making incompatible claims.

‘broad’ place). As soon as it is challenged by ordinary believers who have stronger views than the sceptic himself, or by dissenters within the tradition, or by a different tradition, or by the theology of the philosophers, the sceptic may well have to suspend judgment on the relevant point after all. But perhaps the actual circumstances in the ancient world – one may think of the cult-oriented nature of Graeco-Roman religion and its relative openness to new gods or cults – made it easier to adopt the stand advocated by Sextus.

Examples such as these may serve to show that, even if there remains room for discussion on various details surrounding the question of the scope of Sextan scepticism, the case studies from *M* 9 and which this volume offers may at least contribute to the further articulation of the terms of the general debate, which has thus far, for obvious reasons, mainly been based on the more theoretical ‘general account’ of *PH* 1. In this connection their study should of course be combined with relevant parallel evidence on the attitude recommended by Sextus in the areas of logic and ethics. Thus, in line with what he has to say about the extent to which the sceptic has or does not have a ‘doctrine’ (see above), he recommends that the sceptic accepts the *enargeia* of phenomena for the purposes of everyday life, but not in the same way as it is accepted by the dogmatists, namely as indicating how matters *really* are,<sup>69</sup> or as a basis for sign inference about the non-evident.<sup>70</sup> As noted earlier, one should be careful not to embed the *enargeia* as such in any larger network of beliefs. Also the kind of Pyrrhonist ethics advocated by Sextus appears to be a matter of following conventional appearances of value, without any strong concern about them, and without any attempt to show that they are well founded.<sup>71</sup> Finally, these examples should also be connected with the evidence forthcoming from *M* 1–6, the books attacking the liberal arts, where we find Sextus working along similar lines and condoning those types of *technē* that do not require theory but only experience, such

<sup>69</sup> *PH* 2.95 and Hankinson 1995: 200–1.

<sup>70</sup> The sceptic is allowed to follow life in trusting the so-called ‘commemorative signs’ (e.g. in inferring the existence of fire from the clear presence of smoke, or the fact that there has been a wound from the presence of a scar): ‘Hence [in this case] not only do we not fight against living experience (*bios*), but we even lend it our support by assenting undogmatically (*adoxastōs sunkatatithemenoi*) to what it relies on, while opposing the private inventions of the dogmatists’ (*PH* 2.102). The ‘private inventions of the dogmatists’ are here the so-called indicative signs, which rely on a modicum of theory on the nature of the sign and its relation to the signified and are accordingly anathema to the Pyrrhonist. For a brief discussion, see Hankinson 1995: 201–2; a broader study of Sextus’ discussion of signs also in relation to other schools in Allen 2001: 87–146.

<sup>71</sup> For a critical evaluation of Sextus’ position in this respect, see Bett 2011.

as agricultural astro-meteorology (the art of detecting weather signs), basic grammar (simple writing and reading skills), and music in the sense of the art of playing an instrument.<sup>72</sup>

### Sextus and his sources

About Sextus' sources it is impossible to be very specific. He himself tells us that he uses material 'from the sceptical tradition' (*ta apo tēs skepseōs*, see e.g. *M* 10.20). Correspondences between passages in Sextus and passages in Diogenes Laertius 9.74–108 (Diogenes' discussion of Pyrrhonian philosophy) have long been noticed by scholars. It is chronologically unlikely that Sextus used Diogenes (the reference in Diogenes 9.116 to Sextus and his pupil Saturninus hardly suggests that Sextus was a contemporary). Apart from this, the possibility that either of the two texts was the source of the other one may be excluded, for there are too many differences between the two accounts. The conclusion must be that they are both relying on an earlier source or sources, either directly or at one or more removes, and it is only natural to assume that these sources will have been predominantly of a Pyrrhonian bent.<sup>73</sup> This goes not only for the 'general account', that is, the systematic description of Pyrrhonian philosophy (including the description of the famous 'tropes'), but also for the 'special account' dealing with individual concepts, arguments and theories espoused by the dogmatists. Apparently Pyrrhonist collections of arguments were available, and we may presume that these also used earlier collections compiled by Academic sceptics. This helps to explain, for example, that the chapter concerning god in *M* 9 to a large extent reflects the theological debate between Stoics and Academics, including a distinction which is being made between the question of the origins of our conception of god on the one hand, and the question as to the existence of god or gods on the other.<sup>74</sup> Sextus appears to be dependent on non-sceptical sources, such as doxographies, as well, although such materials may also have reached him through the intermediate stage of the sceptical tradition, and we cannot exclude the possibility that he also made his own excerpts of some important primary sources. In short, there is a lot here that we do not know.

<sup>72</sup> See Spinelli 2010: 260.

<sup>73</sup> For a full overview of the overlap between Diogenes and Sextus and the problem of identifying a common source or sources, see Barnes 1992: 4257–89.

<sup>74</sup> See Bett, in this volume, pp. 44–7.

The question of Sextus' originality is a typically modern one. No doubt what Sextus apparently wanted to offer in his *Against the Physicists* was a maximally comprehensive, helpful, clear and persuasive overview of the relevant physical main tenets of the dogmatists plus the critical counterpart to these tenets which a Pyrrhonist could devise. It is only natural that such an enterprise leaned heavily on existing sources, especially on extant collections of sceptical arguments or doxographical overviews and summaries. How did he deal with these pre-existent materials? As we noted, there are quite a number of parallels between the texts of *M* 9–10 and those of *PH* 3, but also between *M* 9–10 and the later work against the liberal arts, which is now known as *M* 1–6.<sup>75</sup> In some cases these parallels may be taken to suggest that he copied his own earlier work in a later context, in others that he used a common source twice, or that he used two different sources which were both indebted to the same source or tradition. In all cases the parallels suggest that he did not greatly alter the form and content of his examples, but that he did leave himself room for variation: to add or delete materials, or to abridge or tidy up his materials in various modest ways.<sup>76</sup> In general, as we noted, we appear to witness a higher degree of authorial intervention in *PH* than in *M*, and, as we also noted, there remains a kind of tension between his attempts to create or suggest an overall framework for the argument of *Against the Physicists* and the actual contents of what he (following his sources) has to offer. So in *Against the Physicists* the degree of authorial intervention appears to be more limited. At the same time he comes across as someone who has a clear grasp of the nature of his Pyrrhonist project, in *M* no less than in the more systematic first book of *PH*. We are not dealing with a mere scissors-and-paste man. In fact, as Richard Bett has argued, in reading Sextus one does get the impression of dealing with one and the same authorial personality.<sup>77</sup>

If this is the general picture, which inevitably remains rather vague, a few further observations may help to add some detail. First, it appears that, whatever sources Sextus may have used, they were on the whole relatively up to date: much of what he offers in these two books on physics reflects the philosophical situation in the late Hellenistic and early Imperial periods – roughly the first century BC and the first century AD – where Aristotelian physics had been 're-discovered', but where for the rest

<sup>75</sup> See Bett 2012: 161–4 for a list of these parallel passages.

<sup>76</sup> See the differences between the two parallel sets of arguments for the existence of place in *PH* 3 and *M* 10 (both ultimately going back to Aristotle), as discussed in Algra's contribution to this volume, pp. 200–4.

<sup>77</sup> Bett 2012: xvii–xviii.



Stoicism and Epicureanism were the most prominent philosophical schools, in particular in so far as physics is concerned.<sup>78</sup> The Platonic contribution to cosmology and physics had been much less prominent, but Sextus' chapter on number may well reflect Neopythagorean preoccupations which blossomed in the same period.<sup>79</sup>

Secondly, that Sextus, or his source, made ample use of available summaries or doxographies is not just a reasonable guess but can be substantiated with evidence. Thus, we find numerous references to Aristotelian physics (especially on the subjects of place, time and motion),<sup>80</sup> which in itself shows that the revival of Aristotelianism from the first century BC onwards left its traces in the Pyrrhonist tradition. However, in at least one (place), it can be shown that Sextus or his source did *not* have the actual text of Aristotle (i.e. *Physics* 4) before him but used a summary of the kind offered by the likes of Arius Didymus or Nicolaus of Damascus.<sup>81</sup> There are also indications of the pervasive influence of the *placita* literature. The doxography offered at the outset of the chapter on body is paralleled by the Aëtian doxography in Ps.-Galen, and the Stoic definitions of place in *M* 10.3 are partly paralleled by similar sets of definitions in Aëtius and Arius Didymus. Of course there will be other cases where we do not have any parallel evidence at our disposal and where the provenance will thus remain obscure. Anyway, this broad use of summaries and doxographies need not surprise us, given the working methods of many ancient philosophers in general, and given the enormous range of materials which such sceptical overviews as Sextus' *Skeptika Hupomnēmata* (but also its possible Pyrrhonian sources) were supposed to cover. But it remains salutary for those modern readers who mainly consult Sextus as a source on earlier philosophies to realize that much if not most of what he offers is both derivative and abridged.

<sup>78</sup> See Ierodiakonou, in this volume, pp. 106–7; the section on wholes and parts limits itself to discussing Stoics, Epicureans and Peripatetics. The same goes for the section on place, on which see Algra, in this volume, p. 187.

<sup>79</sup> A convenient overview in Kahn 2001: 94–139.

<sup>80</sup> See, for example, in this volume Bobzien (pp. 291–2); Betegh (pp. 140, 145); Hankinson (pp. 232–3); Algra (pp. 200–10).

<sup>81</sup> See Algra, in this volume, pp. 208–10.

## CHAPTER I

### *God: M 9.13–194*

*Richard Bett*

#### Introduction

Jonathan Barnes has described one part of *Against the Physicists* as ‘rude and mechanical’.<sup>1</sup> I would not apply this description to the work as a whole. This is not because I have a higher opinion of the work than Barnes’ wording seems to imply. On the contrary: one of the things that most struck me, in studying the work in preparation for writing this chapter, is that it does not fully deserve even the label ‘mechanical’, which suggests at least a certain banal competence in assembling material. *Against the Physicists* has a number of structural oddities that give parts of it a distinctly haphazard aspect. And one of these parts, as I shall illustrate, is the section that, following the general introduction (*M* 9.1–12), opens the work, the section on gods. The parallel physical section of *Outlines of Pyrrhonism* 3 seems notably better organized.

In the past I have used comparisons of this kind, applied to other parts of Sextus’ oeuvre, as part of an argument for revising what is probably still the standard view on the order of composition of Sextus’ works. The seemingly more polished composition of *Outlines of Pyrrhonism* (hereafter, *PH*), I have claimed, is one reason for thinking that it is later than the longer work of which *Against the Physicists* is part, not earlier, as has usually

This chapter has benefited greatly from comments at the 2007 Symposium Hellenisticum conference. In addition to those mentioned in footnotes, I am particularly indebted to Julia Annas, Myles Burnyeat, Michael Frede, Jim Hankinson, Brad Inwood and David Sedley. I also thank Julia Annas for helpful comments on an earlier related paper, as well as audiences at the University of Iceland and the University of North Carolina-Wilmington, where that paper was presented; and Malcolm Schofield for valuable advice prior to the conference about the relative strength of the various components of my case for a developmental picture of Pyrrhonism. In addition, I thank an anonymous reader for Cambridge University Press, as well as the editors, Keimpe Algra and Katerina Ierodiakonou, for comments at the final stage that prompted a number of improvements. Finally, I thank Acumen Publishing for permission to reuse material from about seven paragraphs of Bett 2009.

<sup>1</sup> Barnes 1990b: 2677. As the title suggests, Barnes’ comment applies to the section of *M* 9 dealing with causation.

been thought. The question is of course a very complicated one and cannot possibly receive a full treatment here. But it is surely not irrelevant to a volume devoted to *Against the Physicists*. I propose, then, to devote the next section of this chapter to a very brief discussion of the issue of order of composition, and, more specifically, to whether anything in *Against the Physicists* contributes to the case for the ordering that I have proposed elsewhere. In the two central sections (pp. 40–52) I shall have a good deal to say about the structural oddities to which I referred – especially, though not only, in the section of the text assigned to me – but I will not attempt any explicit inferences about order of composition. Having discussed these structural matters and also some of the individual arguments in the section on gods, I shall address (in the last two sections, pp. 52–66) the question of the nature of Sextus’ own religious practice and its relation to his sceptical activities. In the [Appendix](#) I give a complete analytical outline of the section on gods in *Against the Physicists*.

### Order of composition

The two books *Against the Physicists* come between two books *Against the Logicians* and one book *Against the Ethicists*; these five books are the surviving portion of a work that Sextus himself calls ΣΚΕΠΤΙΚὰ Ὑπομνήματα, *Sceptical Treatises* (*M* 1.29 [26]; 2.106; 6.52),<sup>2</sup> which appears to have begun with a general treatment of scepticism, now lost, that would have covered the same sort of ground as the first, general book of *PH*.<sup>3</sup> So it looks as if the whole work had the same broad structure as *PH* but dealt with its material at far greater length. Now, should we even raise the question which of these two works came first? Why should we assume that he wrote one of them before the other, rather than, say, composing them,

<sup>2</sup> Aside from these references in the text, the two books of *Against the Physicists* and the single book *Against the Ethicists* are labelled in the manuscripts as books 8, 9 and 10 of Sextus’ ΣΚΕΠΤΙΚὰ, or of his Ὑπομνήματα. Diogenes (9.116) also refers to Sextus’ ΣΚΕΠΤΙΚὰ in ten books. There is actually a back-reference to a work Sextus calls Ὑπομνήματα at *PH* 1.222. Annas & Barnes 1994, note ad loc., make a strong case that ΣΚΕΠΤΙΚὰ Ὑπομνήματα is the work here referred to; and this might seem to settle the question of the order of composition. But Sextus does also refer to works of his called Ἐμπειρικὰ Ὑπομνήματα (*M* 1.61) and Ἰατρικὰ Ὑπομνήματα (*M* 7.202); and besides, it is always possible that a single isolated reference could have been added later. I therefore hesitate to place much weight on this passage, tempting as it is to do so.

<sup>3</sup> On the fact (I think we may safely refer to it as such) that Sextus’ longer work is incomplete in its present form, see Janáček 1963; Blomqvist 1974. The numbering referred to in the previous note suggests that the lost general portion was five books long; if so, and if these lost books were anything like the size of the surviving books, the complete work must have been truly massive.

and perhaps constantly reworking them, concurrently rather than sequentially, and perhaps intending them for different audiences? The question is certainly a legitimate one; for we know nothing at all about this subject beyond what can be gleaned from the works themselves.

But the question has a ready answer in the minute studies of Sextus' style and vocabulary done by the Czech scholar Karel Janáček. Janáček showed a great many subtle differences between the two works in these respects; certain pieces of terminology are more common in one work than the other, one work uses certain connecting words in different ways from the other, and so on.<sup>4</sup> Now, these differences are in most cases<sup>5</sup> quite irrelevant to the arguments or ideas being presented; they are simply trivial stylistic preferences or quirks of a kind that many authors exhibit in different phases of their writing life. In this respect they resemble a well-known stylistic shift in Plato's writing: a markedly greater tendency to avoid hiatus in six works (*Sophist*, *Statesman*, *Timaeus*, *Critias*, *Philebus* and *Laws*) than in all the others. Again, this has nothing to do with any philosophical differences or differences of genre; but in conjunction with other indications that the *Laws* was Plato's last work, it gives us good reason to think that these six works are Plato's latest.<sup>6</sup> In Sextus' case, too, these mostly insignificant differences point strongly towards different periods of composition of the two works. It is difficult, to put it mildly, to see how they could be explained by the different purposes or intended audiences of the two works, whatever one may take these to be. And in any case, Sextus would have had to be a much more accomplished and self-conscious stylist than he actually is to have exploited these differences in that sort of way. (Sextus' writing is mostly agreeable, but he is no Plato. And as just noted, not *every* feature even of Plato's writing has a significance of this kind.) The obvious conclusion is rather that Sextus' writing simply underwent these various insignificant shifts, of which he may have been more or less conscious in different instances, and that the two works belong to different portions of Sextus' working life.

<sup>4</sup> See especially Janáček 1972 and 1948. A complete bibliography of Janáček's works in this area can be found at the end of Barnes 1992; the article also includes an excellent sketch of Janáček's methods (see especially section X). Most, if not all, of Janáček's smaller works have recently been republished (including some in German translation that originally appeared in Czech or Russian) in Janáček 2008. See also Jan Janda's retrospective on Janáček's work, Janda 2006.

<sup>5</sup> I come to an exception below.

<sup>6</sup> In the same way, it would be easy to separate my own published works into two groups – those before and those after about 1997 – by the much greater or lesser prevalence of 'which' in contexts where written American English prefers 'that'. Many readers will be able to point to similar stylistic evolutions in their writing, which are indications of date but tell us nothing else of any importance.

But if the two works were written in different periods, then it becomes worth asking which came first. The arguments that I have used in the past for the priority of the longer work have been of three main kinds. One is the point I have already mentioned (and will return to in the next section): it has again and again been my impression (and I am not alone)<sup>7</sup> that Sextus simply does a better job in *PH* than in the other work. Other things being equal, one would expect an author's works, especially on the same subjects, to become better, not worse, over time, and so this would suggest that *PH* is the later work. Now, it is of course true that one has to be careful what one means by 'better' in this context; if the purposes of the two works are different, then perhaps different strategies will be effective in each. In particular, on the question of organization, with which I began, it is worth noting that a sceptic might do well not to be *too* systematic (that might smack of dogmatism); perhaps a more rambling and discursive treatment of his material, such as *Against the Physicists* seems to exhibit as compared with the physical part of *PH* 3, would work better in inducing the sceptical attitude in some readers. But this line of thinking can be taken only so far. The announcement of plans that are not followed through, or the obfuscating of transitions between topics, are not going to endear Sextus to any likely category of reader, nor is it plausible that Sextus would have thought that they would; but these are among the features that, as we shall see, *Against the Physicists* has in far greater measure than its counterpart in *PH*. One can grant that the works may have been written with different audiences in mind, and that this may account for some of the differences between them, notably the difference in length (although this is a story that it would be nice to see developed in detail). But competence and incompetence are not purely relative to audience or purpose, and I shall suggest that Sextus shows less compositional competence in *Against the Physicists* than in the corresponding part of *PH*, no matter who he expects his readers will be. If Sextus' writing followed the usual trajectory, this in turn suggests that the work to which *Against the Physicists* belongs is the earlier work.

A second line of argument that I have employed in the past concerns correspondences between each of these two works and passages of Diogenes Laertius' life of Pyrrho (9.61–108). I do not think there is any case in *Against the Physicists* that bears upon this line of argument,<sup>8</sup> so I have nothing to say

<sup>7</sup> Besides the comment of Barnes with which I began, see e.g. Brunschwig 1988b: n. 9.

<sup>8</sup> I here retract a suggestion in Bett 1997: xxviii, n. 49, that the passages on causation in the two works support the order of composition for which I have argued. The argument from parallels in Diogenes

about it here. The third and final form of argument that I have employed in favour of the priority of ΣΚΕΠΤΙΚΑ is that it shows much clearer traces of a form of Pyrrhonism that predates Sextus himself – namely, the Pyrrhonism of Aenesidemus – than does *PH*; in *PH* Sextus has removed most (though not all) such anachronisms, whereas ΣΚΕΠΤΙΚΑ retains them to a greater degree. The argument here is complicated, and certainly not without controversy. Here too, *Against the Physicists* is not particularly revealing. But one point does seem to me to be worth raising in this context.

There is an interesting difference of vocabulary between *PH* and ΣΚΕΠΤΙΚΑ. Both works make frequent use of the verb ἀναιρεῖν, ‘do away with’. But, whereas in *PH* this verb is never used to describe the sceptic’s own activity, in ΣΚΕΠΤΙΚΑ Sextus periodically speaks of himself and his sceptical colleagues as ‘doing away with’ the things they have been discussing.<sup>9</sup> Now, ἀναιρεῖν in the sense ‘do away with’, in a philosophical context (unlike some more down-and-dirty contexts in which it is equivalent to ‘kill’, e.g. Eur. *Andr.* 518), seems to amount to ‘argue for the non-existence of’; and in fact the term occurs a number of times in Diogenes Laertius’ summary of Pyrrhonism, where several sections begin ‘They [i.e. the Pyrrhonists] do away with X’ and several sections end ‘therefore X does not exist’.<sup>10</sup> Diogenes, then, attributes to the Pyrrhonists arguments for the non-existence of the things posited by the dogmatists, such as causes, signs, demonstrations, and so on. And it looks as if Sextus in ΣΚΕΠΤΙΚΑ occasionally does the same thing, even though in *PH* he takes the trouble to insist that ‘doing away with’ the things about which he argues is precisely what the sceptic, the suspender of judgement, does *not* do (I.193, 196, 197).

There is room for disagreement about whether Diogenes really means to suggest that the Pyrrhonists *endorsed* these negative arguments – rather than devising them as part of the construction of sets of equipollent

succeeds only where one of Sextus’ works is much closer to Diogenes than the other one (and therefore much closer to the common source on which they both appear to be drawing), but where the parallels between the two works of Sextus are themselves sufficiently close that one of them is clearly a reworking of the other (rather than possibly relying on a quite different source). The latter condition does not obtain in this case.

<sup>9</sup> This was observed by Janáček 1972: ch. VII. Janáček was committed throughout his career to the view that the longer work of Sextus was later than *PH*. He argues that in the longer work Sextus ‘weakened the meaning of ἀναιρεῖν’ and that ‘ἐπέχω and ἀναιρεῖν are . . . in the same function’ (59). But he has no clear explanation of why Sextus would have introduced this ill-suited term in the longer work, whose meaning he was then obliged to distort. On the flimsiness of Janáček’s chronological suppositions, see Bett 1997: Appendix C.

<sup>10</sup> The only case where both formulations occur in connection with the same topic is that of causation (9.97, 99). But ‘they do away with X’ regularly alternates with ‘there is [in their opinion] no such thing as X’, and these clearly seem intended to mean the same thing.

opposing arguments – or whether, if he does mean to suggest this, we should believe him.<sup>11</sup> But there is solid evidence in Sextus himself that at some point such negative argumentation was indeed central to the Pyrrhonist strategy. In *Against the Ethicists* Sextus not only argues for the conclusion that nothing is by nature good or bad but several times (*M* 11.118, 130, 140) asserts that the Pyrrhonist's *ataraxia* results directly from the *acceptance* of that conclusion (not from suspension of judgement about it). Now, this approach might quite accurately be described as 'doing away with' the things under discussion; and Diogenes' account of the Pyrrhonists' activity, read at face value, would be perfectly compatible with this. The case for connecting this kind of approach with Aenesidemus comes mainly from the summary of his *Pyrrhonist Discourses* in Photius' *Bibliotheca* (169b18–170b35), which attributes to Aenesidemus a number of arguments to the effect that the items posited by the dogmatists do not exist (170b12–14, 17–20, 31–5).<sup>12</sup> And so, if we put all this together, we can see Sextus' periodic use, in ΣΚΕΠΤΙΚΑ, of ἀναιρεῖν to describe the sceptic's own activity not as a simple confusion, but as the result of incomplete adaptation of material from an earlier phase of Pyrrhonism (a version preserved most clearly in his own *Against the Ethicists*) to the version current in his own time. And if this is correct – admittedly a big 'if', for all that I have said here – then the fact that this happens in ΣΚΕΠΤΙΚΑ, but never in *PH*, is an indication that ΣΚΕΠΤΙΚΑ is the earlier work; one would not expect someone to *revert* to an anachronism, having ironed it out entirely in a previous work.

*Against the Physicists* contains fewer traces of this pattern than *Against the Logicians*, but it is not completely free of them. I have found just two instances of ἀναιρεῖν in *Against the Physicists* to refer to the sceptic's procedure.<sup>13</sup> At the end of his discussion of place, and in transition to the next topic, motion, Sextus says 'But since we have done away with (ἀνερήκαμεν) this [i.e. place] too, let us next see whether ...' (*M* 10.36). And earlier, in the course of his discussion of body, he moves to a new, but strictly speaking superfluous, set of arguments by saying 'we have already virtually done away with (ἀνερήκαμεν) body and do not need novel

<sup>11</sup> I thank the participants at the 2007 Cambridge Mayweek Seminar on Diogenes Laertius 9, especially Myles Burnyeat, Malcolm Schofield and David Sedley, for emphasizing some of the difficulties in this area.

<sup>12</sup> I have argued for this interpretation of Aenesidemus in Bett 2000: ch. 4. See also Woodruff 1988. Barnes 1992 is also sympathetic to the idea of an alternative form of Pyrrhonism accurately preserved by Diogenes, though without attributing it specifically to Aenesidemus.

<sup>13</sup> This was with *TLG* word searches using ἀναιρ-, ἀνερ- and ἀνελ-. These do not exhaust all forms of the verb, but they are the usual ones in Sextus.

arguments against it' (M 9.366).<sup>14</sup> On the other hand, there are at least two instances where the sceptics are *contrasted* with those who 'do away with' the topics under discussion (M 9.195; 10.48–9); there are the people who posit certain entities, the people who deny their existence, and there are the sceptics who suspend judgement – and ἀναιρεῖν is used in connection with the second group. So Sextus is inconsistent in his usage in *Against the Physicists*. But while his use of ἀναιρεῖν in the first-person plural may be a relic of an earlier phase of Pyrrhonism, it is the other usage, where it applies to what modern scholars call negative dogmatists, that accords with the Pyrrhonism standard in Sextus himself.

And it is that form of Pyrrhonism that, despite very occasional lapses, is clearly what Sextus intends in *Against the Physicists*. When he closes a topic, he may sometimes sound as if he is asserting the non-existence of the items just discussed (M 9.439; 10.168, 309, 350); and maybe this is what such arguments were designed to do in the hands of Aenesidemus. But Sextus repeatedly makes clear that the point of such negative arguments is instead to serve as a counterweight to the dogmatists' positive arguments, and that the sceptic's goal is the manufacturing of a situation of *isostheneia*, 'equal strength', between the arguments on either side of the issue, leading to suspension of judgement (M 9.59, 137, 191, 192, 194; 10.168). It is no accident, I think – and we shall return to this point – that most of these references are from the section on gods; Sextus apparently wants to be particularly clear that he is not in any sense denying the existence of gods. (The stakes are higher for him on this topic than on, say, motion or place.) He also employs the idiosyncratic later Pyrrhonist usage of the term *ou mallon*, 'no more', to express this sceptical suspension of judgement (M 9.50, 59, 195; 10.45, 49).<sup>15</sup> Whatever we may say about which work came first, the Pyrrhonism of *Against the Physicists* is one with which the Sextus of *PH* would be perfectly comfortable. Whether that Sextus would be comfortable

<sup>14</sup> Several participants at the conference pointed out that this statement is qualified by 'against those who think of body as what can be affected or affect'; and Keimpe Algra (in this volume, pp. 184–216) points to similar instances to argue for an understanding of ἀναιρεῖν as referring to the defusing of an opponent's argument, rather than to the outright 'doing away with' some entity by Sextus himself. I think this accurately represents Sextus' intentions in these passages. My point is simply that that is not what ἀναιρεῖν really means; it means 'do away with', not 'defuse in a certain respect'. Its presence in such passages therefore seems to reinforce my main contention, namely that the use of ἀναιρεῖν to describe the sceptic's activity is a relic of a different phase of Pyrrhonism in which 'doing away with' things was normal and expected; without some such history, it would not have occurred to Sextus or anyone else to use it in this context.

<sup>15</sup> Rather more often, in fact, than in *Against the Logicians*. *Ou mallon* is common in *Against the Logicians* amid the details of arguments. But it appears only twice as part of a characterization of scepticism itself (M 8.298, 328). For Sextus' own explanation of the term *ou mallon*, see *PH* 1.188–91.



with the structural oddities of *Against the Physicists* – particularly those in the section on gods – is another question; and to these I now turn.

### Structural oddities: *M9* and *10* in general

The physical portion of *PH* 3 announces in the first section that it will begin with a discussion of principles (ἀρχαί). Principles are then divided into material (ὕλικοί) and active (δραστικοί), and each type is discussed, beginning with active principles. The section on active principles – also referred to as ‘active cause’ (δραστικὸν or ἐνεργητικὸν αἴτιον, 2; 13) – begins with God (2–12) and continues with a more general discussion of cause (13–29). We then move from active to material principles (30), also referred to as elements (στοιχεῖα, 36; 37). A number of views on material principles are listed (31–2), and some Agrippan considerations are introduced to show that any attempt to choose between them is hopeless (33–6). Sextus then says (37) that all these views involve elements that are either bodies or incorporeals<sup>16</sup> and continues with a critique of both body and the incorporeal (38–55). The whole subject of principles, both active and material, is now declared intractable (ἄπορος, 55), and the topic seems to be at an end; but there follows a brief chapter on blending (κρᾶσις), which serves as a coda, introducing an additional difficulty about elements (56–62). The discussion now moves to a number of physical topics other than that of principles, including motion and other types of change, rest, place, time and number (63–167). Place and time, of course, were regarded by the Stoics as incorporeals, and it is easy to think of numbers as incorporeal. But time and, with one partial exception, place were not thought of as principles,<sup>17</sup> nor were numbers, except by the Pythagoreans and those influenced by them.<sup>18</sup> So although the incorporeal in general was dismissed earlier, in the course of the discussion of principles, there is a point to discussing these things separately in the part not dealing with principles.

<sup>16</sup> The notion of a *material* principle that is incorporeal may seem peculiar. But the Pythagorean principle number is given as an example (32). In what sense number was a ‘principle’ for the Pythagoreans is of course a complicated question. But it is clear that ‘material’ in this context need not entail ‘composed of physical stuff’ (any more than ὅλη in Aristotle always refers to physical stuff; geometrical objects have intelligible matter (*Metaph.* 1036a9–12; 1037a4–5), and the passive intellect, despite being non-bodily, is the matter for the transformations effected by the active intellect (*de An.* 430a10–15)).

<sup>17</sup> Place – or that which in some contexts is called ‘place’ – does in effect serve as a principle in Epicureanism; see below, n. 24.

<sup>18</sup> See above, n. 16.

*Against the Physicists* proceeds rather differently. The introductory section (M 9.1–12) appears to limit the entire discussion to principles.<sup>19</sup> This is presented as an instance of a general policy of attacking the foundations of a view rather than its particular tenets (1–3); the latter is said to be both a waste of time (something for which the Academics are criticized) and less skilful (τεχνικός) and elegant (χαρίεις) than the dismantling of an entire view in one attack, an interesting and, for Sextus, unusual appeal to broadly aesthetic considerations. The idea, then, is that if we undermine the principles of physics, we have done all we need as far as physics is concerned. Again we are given the basic division between active and material principles (4), and the proposal to begin with the active ones (ποιητικῶν, 12). But the discussion of the active ones is then previewed as follows: first Sextus will discuss God, and then he will discuss the non-existence of anything active *or affected* (ποιοῦν ἢ πάσχον, 12). Already the plan seems to be losing focus; the second part of the treatment of active principles is going to include a treatment of the other type of principles as well.<sup>20</sup>

Moreover, the discussion of God is said to be going to proceed ‘sort of dogmatically’ (οἷον δογματικῶς), whereas the other topic will be treated ‘more in the spirit of impasse’ (ἀπορητικώτερον). I must confess that I fail to see what the ‘dogmatic’ aspect of the discussion of God is supposed to consist in, or why Sextus would admit to conducting any inquiry dogmatically (even given the qualification οἷον, the force of which is also unclear); indeed, since *skepsis* is the name he gives to his own, non-dogmatic approach, ‘*inquiring*’ (σκεπτόμενοι) sort of dogmatically’ has the feel of an oxymoron. At any rate Sextus’ treatment of the main topic, whether or not God or gods<sup>21</sup> exist, seems to be a model of the Pyrrhonist method

<sup>19</sup> I say ‘appears’ because Sextus’ language is notably less direct and straightforward than in the opening sections of *PH* 3. Still, he gives no indication that there are any other topics to consider – whereas he does at least strongly imply this in *PH* – and his use of the analogy with literal foundations strongly suggests that there are not. (*PH* 3.1 speaks in comparative terms, recommending an attack on more general, rather than less general, targets. But it does not appeal to the metaphor of foundations. This seems designed to allow that there are other subjects to discuss besides principles. There is nothing like this at the opening of *M* 9.)

<sup>20</sup> For the equivalence of ‘affected’ and ‘material’ see 194, on which more in a moment.

<sup>21</sup> As often in ancient authors, the question *how many* gods there are, supposing there are any, is not a topic in which Sextus shows much interest. The sorites arguments that Sextus borrows from Carneades (*M* 9.182–90), in which the population of gods is made to grow to a preposterous level, are the only possible exception. But, even here, the issue is not so much that this reasoning yields absurdly *many* gods, but that the *kinds* of things that turn out, on this reasoning, to be gods – lengths of time (184), emotions (188) and stones (189) – are things that no one in their right mind would regard as such. In particular, the question whether to recognize one God or many gods does not occupy Sextus at all; he freely switches between the singular and the plural, and I shall continue to do the same.

of assembling equally powerful arguments on either side. There is an echo of the same point at the end of the treatment of God, where Sextus proposes to deal ‘more sceptically’ (σκεπτικώτερον, 194) with the next topic than he has on the one just finished. But here the ‘dogmatic’ side of the distinction is not sustained. Sextus claims to have established ‘that suspension of judgement follows from the things said dogmatically about the active principles’, and (with one possible exception noted below) that is an accurate statement of what has just taken place; but that is of course quite different from saying that his own procedure has been in some way dogmatic – the dogmatism here (just as usual) belongs to the views put into suspension of judgement, not to the act of putting them there.<sup>22</sup> Perhaps Sextus is drawing on sources some of which he regards, or some of which announced themselves, as more dogmatic than others. But, if so, he is (to use the criteria he himself introduced) less skilful and elegant than we might like in adapting them into a coherent and clearly structured account.

This is not the end of such difficulties. I do not want to encroach on others’ territories. But the oddity of the place of the section on God in the whole may be better appreciated by a sense of the structural oddity of the whole; and so a very brief outline of the remainder may be worthwhile. The claim ‘that suspension of judgement follows from the things said dogmatically about the active principles’ (194) makes it sound as if Sextus has already been discussing active principles in general, not just God. Be that as it may, he now moves to a more general treatment of cause. But, as previewed at the outset, this is in fact a treatment of ‘active cause’ and ‘affected matter’ together (ποιουντος αιτίου, πασχούσης ὕλης, 194). It is a treatment of other things too; subtraction and addition come in on the coat tails of the question how anything can be affected (277), and whole and part come in on the coat tails of subtraction and addition (330). These are indeed not unrelated to the general topic of the active and the affected, as Sextus is at pains to point out (330); but in *PH* 3 these topics are dealt

<sup>22</sup> Malcolm Schofield suggested that the contrast to which Sextus is drawing attention is between an inquiry in which the opposing positions juxtaposed are dogmatic on both sides – the arguments against the existence of God, due in large part to Carneades (see below, pp. 50–1), being regarded as negatively dogmatic – and one in which dogmatic positions are put in opposition to counter-arguments devised by the sceptics themselves. *M* 9.206–7, where dogmatic arguments are said to be juxtaposed with arguments of the ἀπορητικοί, a common synonym in Sextus for ‘sceptics’, contrasts nicely with the passage just quoted in the main text to support this reading. But again, this is not remotely the same thing as saying that his own inquiry concerning the gods is dogmatic (or even ‘sort of dogmatic’); for placing dogmatic views in opposition to one another does nothing whatever to make one dogmatic oneself. So if this is what he means, his way of expressing it is singularly inept.

with separately, in the part following the discussion of principles, and the effect is much more focused and less rambling. This large section then closes by saying that active principles have now been adequately treated, and that what follows will be a more general discussion of ‘both these [i.e. presumably, active principles] and material principles’ (358), which is puzzling for three reasons: (a) much of the previous text, as we just saw, deals with both active and material principles, not just active ones; (b) the first part of this remark sounds as if it is announcing the close of the treatment of active principles,<sup>23</sup> while the second part immediately contradicts this; and (c) what follows does *not* in fact deal with active and material principles together, but only with material ones.

Again, as in *PH* 3, we now get a division between elements that are bodies and those that are incorporeal, with examples of each type (359–66). The rest of the first book then deals with body, and its final sentence (440) proposes to move to the topic of incorporeals. This is indeed what happens in the second book. But the incorporeals talked about are not quite the ones we would expect from the initial list of incorporeal elements: numbers, limits of bodies, and Platonic forms (*M* 9.364). Instead, Sextus deals first with place and time – again, incorporeals according to the Stoics, but not elements according to anyone.<sup>24</sup> Number does find its way into the discussion on the coat tails of time (248), but limits and Platonic forms nowhere appear (although limits do make a brief appearance at the end of the first book, in the course of the discussion of body, *M* 9.430–5). The second book also includes an extensive discussion of motion, which is introduced on the coat tails of place (*M* 10.36), but which does not, as far as I know, figure in anyone’s view as either an element or an incorporeal. The final topic is coming-into-being and perishing (*M* 10.310–51), and this Sextus does not even try to connect with the rickety structure that has been in place so far.<sup>25</sup>

<sup>23</sup> One could perhaps try to read αὐτάρκως in the sense ‘by itself’ or ‘independently’, the point being that active principles have so far received discussion *on their own*, and that there will follow a discussion of these *in conjunction with* material principles. But other uses of αὐτάρκως in Sextus tell against this; elsewhere it is always used to signal that a topic has received *sufficient* discussion, in preparation either for a new topic, or for an additional argument, labelled as strictly speaking superfluous, on the same topic (*M* 8.130; 9.190; 10.319; 11.110; 1.247; 3.17; 5.85).

<sup>24</sup> ‘Place’ (τόπος) is one of the names that apply in different circumstances—the others, as Sextus points out (*M* 10.2) being ‘void’ (κενόν) and ‘room’ (χώρα)—to the ‘intangible substance’ that serves as the other basic entity in Epicurus’ cosmology besides bodies. But Epicurus is careful not to call it an element; only the atomic bodies are elements. See *Letter to Pythocles*, Diogenes Laertius 10.86. For a good brief discussion of the issue, see Long & Sedley 1987: vol. 1, commentary on section 5.

<sup>25</sup> The section on coming-into-being and perishing does contain some back-references to other sections (e.g. *M* 10.320, 324); and, as James Warren points out, the same device for connecting

### Structural oddities: the section on God

The peculiarity in how Sextus treats the status of the section on God is, then, just part of a wider set of peculiarities in how *Against the Physicists* is constructed. Let us narrow in now on the section on God itself. In the [Appendix](#) I offer a comprehensive breakdown of the contents of this section; here I continue to keep my eye on structural oddities, while also examining some arguments individually along the way. Again a comparison with *PH* 3 may be instructive. The brief discussion of God in *PH* 3 follows a pattern common in Sextus: first it raises difficulties in the conception of God (3–5), and then argues that, even if God *is* conceivable, we must suspend judgement about whether or not God exists (6–9). It ends with a version of a familiar conundrum for believers: how there can be a god that is both omnipotent and benevolent, given all the bad things that happen in the world. Sextus' strategy is to argue that whatever response believers offer to this puzzle, they are guilty of impiety, because they are committed to denying some central aspect of the generally recognized conception of God (9–12). There is no precise analogue to this last section in *Against the Physicists*. But the discussion of God in the latter work ends with a brief reference (on which I will have more to say later) to the divergence of ordinary religious opinion, which is designed to reinforce the suspension of judgement about gods' existence that the prior treatment has already induced (*M* 9.191–2); and Sextus adds that the myth-making of poets who write about gods<sup>26</sup> 'puts an additional seal on' (προσεπισφραγιζομένης, 192) the same point – namely, that suspension of judgement is the only

topics (where the existence of one thing presupposes the existence of something else already discussed) appears a number of times in the second book. See Warren 2003: 315–16. See also Warren's contribution to this volume (pp. 365–402), which includes a more positive account of the ways in which the section on coming-into-being and perishing connects with the rest of *Against the Physicists*. It remains true, however, that Sextus never says anything to explain how this final section fits into the overall structure of the two books.

<sup>26</sup> I do not intend this phrase as a *translation* of Sextus' θεολόγοις καὶ ποιηταῖς, but these are in fact to whom he is referring. The important point is that θεόλογος does not mean 'theologian', i.e. someone engaged in theoretical or academic discourse about divine matters. A θεόλογος is, as the etymology suggests, simply someone who talks about gods, and the word normally seems to be used of poetic or other popular depictions of them, not of philosophical reflections about them. Aristotle also connects θεολόγοι with poetry in the phrase 'those around Hesiod and all those who are θεολόγοι' (*Metaph.* 1000a9), and the murky views he goes on to attribute scornfully to this undifferentiated group are anything but theoretical. The juxtaposition θεολόγοι καὶ ποιηταί also appears in Philodemus, *On Piety* 11.2481–2; see Obbink 1996: note ad loc. The word appears nowhere else in Sextus (unless Bekker is right in his conjecture at *M* 2.31). But earlier in *Against the Physicists* (*M* 9.55) he speaks of Theodorus as skewering τὰ παρὰ τοῖς Ἑλλήσι θεολογούμενα; here again we are talking about ideas in broad currency in the culture, ideas of which the poets would be the most important vehicles.

possible attitude to this topic – since it is ‘full of every impiety’, as observed by Xenophanes in his denunciation of Homer and Hesiod (192–3). In neither work is the force of the allegations of impiety made absolutely clear. But one can see them in both works as amounting to a kind of self-refutation argument; if a belief in gods results in one’s being impious by the very standards that that belief brings with it, then the original belief is surely undermined.<sup>27</sup>

Apart from this closing issue, *Against the Physicists* follows the same broad sequence of topics as *PH* 3; the discussion of God or gods begins with a section on the conception of God and continues with a section on the existence or non-existence of gods. One significant difference is that whereas the *PH* 3 discussion addresses the latter topic with a very brief and general series of Agrippan arguments, the discussion in *Against the Physicists* offers numerous specific arguments in favour of the existence of God, followed by numerous specific arguments against (60–190), and a declaration that suspension of judgement is the result (191; 194). This, of course, renders the treatment of this topic in *Against the Physicists* much richer in terms of its content, whatever one may think about the structural issues with which I have been concerned; and this is typical of the differences between Sextus’ longer work and *PH*, which Sextus frequently reminds us is only an ‘outline’. One effect in the present case is that there are no parallel passages between the two works on the question of the existence of God.

And the same is true of the opening section on the conception of God;<sup>28</sup> for the discussion in *Against the Physicists* opens not with arguments against the conceivability of God, but with a series of attempted *explanations* of how we could have come to have the conception of God. These include seemingly deflationary accounts, such as the one according to which gods are a fabrication designed to achieve social stability, but also others, such as Epicurus’ claim that we come to the conception of gods through the experience of super-human forms in dreams, that are not decisive as to whether or not gods do indeed exist (14–28). Sextus then argues that, aside

<sup>27</sup> The difference is that the clause ‘by the very standards that that belief brings with it’ is less clearly made out in *Against the Physicists*; Xenophanes’ critique of traditional religion is plausibly seen as revisionary, rather than as drawing to the attention of Homer and Hesiod (and ordinary followers of the religion) an inconsistency in what they already believed. By contrast, the argument in *PH* 3 does seem clearly designed to accuse the believers of impiety on grounds they themselves would accept. I return to these passages below; see pp. 58–9.

<sup>28</sup> Thus, although the two works follow the same general pattern in their respective sections on God, there are no cases where the later work (whichever it is) includes a revised version of the very same material as appeared in the earlier work.

from the fact that these explanations are all in competition with one another, with no way of resolving the dispute, they all fail individually (29): either they presuppose, question-beggingly, that some people *already* possess the conception of God, or they fail to explain why the process in question leads to a conception of *God* (rather than, say, of an outsize human being), or they involve circular reasoning (30–48). The upshot is that there is no adequate account of how we could have come to have the conception of God.

A natural question to raise is what this is supposed to show; and Sextus' answer is not clear. He immediately continues 'Since not everything that is conceived also shares in existence, but a thing can be conceived, yet not exist . . . it will be necessary after the inquiry about the conception of gods to look into their existence as well' (49). Apparently, then, as in *PH* 3, we are now meant to proceed on the supposition that God can be conceived, and to move to the question of God's existence. But this transition is much less neat than in *PH* 3. One might think Sextus intends the same as in *PH* 3, namely, that the foregoing discussion has shown that God cannot be conceived, but that, even supposing this were not so, there are further difficulties to do with God's existence. But the inconceivability of God does not follow from what he has just argued; from the fact that no good explanation has been given of how we came to have a conception of God, it does not follow that there is not or cannot be any such conception. In fact, Sextus alludes to a universally shared conception of God in the course of the argument itself (33). Does he, then, take himself to have established that God *can* be conceived? That, too, seems unlikely; he may have presupposed this, but his focus was on a different topic altogether.

Sextus is not the only one to treat the question how the conception of God arose as a preliminary to the question whether God exists. The same order appears in the first book of Aëtius, as reconstructed by Diels from Ps.-Plutarch and Stobaeus; in the course of a summary of views on basic physical principles, we have a chapter on 'Whence humans obtained a conception of God' (πρόθεν ἐννοίων ἔσχον θεῶν ἄνθρωποι), followed by a chapter on 'Who is God' (τίς ἐστὶν ὁ θεός), which begins with some arguments for the non-existence of God before proceeding to a series of positive views about God's nature.<sup>29</sup> As David Runia has observed,<sup>30</sup> there can be a point to treating both topics together, and in this order, and the comment of Sextus that I quoted in the previous paragraph expresses this point: just because we can conceive something, and can see how we came to

<sup>29</sup> Diels 1879: 292–307.

<sup>30</sup> Runia 2002: 281.

conceive it, it does not follow that that thing exists, or is as we conceive it. This kind of scheme might work either in a sceptical context or in a non-sceptical one such as Aëtius. However, Sextus' actual discussion of how we arrived at the conception of God is not well suited to play its role in such a scheme. The Aëtius chapter on how we came to have our conception of God simply lists a variety of explanations, and in a tone that is neutral as to their implications concerning God's existence. The chapter on the existence and nature of God that follows is not without problems;<sup>31</sup> but the role of the chapter on the conception as a prelude to it is unproblematic. By contrast, it looks as if Sextus, or his source, has seized on the subject of explanations for our conception of God as itself material for sceptical polemic; so we are given a list of explanations, and then a series of arguments for why they all fail. There is nothing inherently wrong with this; but it does mean that the transition from the topic of conception to that of existence is somewhat awkward, because there is no clear connection between the section on conception and the transitional comment 'even if we can conceive something, it does not follow that it exists'. A non-sceptical account of how our conception of God arose, as in Aëtius, would lead naturally into that transition, and so would an argument, as in *PH* 3, to the effect that there is *no* clear conception of God. But an argument that there is no good explanation for why we have the conception that we have does not.<sup>32</sup>

Nonetheless, the discussion now turns to the question of the existence of the gods. Sextus begins (50–9) by mentioning the various possible positions; that they do exist, as held by ordinary people and by most dogmatists, that they do not, as argued by a few, and that they 'no more' do than do not, which in Pyrrhonist terminology (or at least, in Sextus' incarnation of it) is equivalent to expressing the sceptics' own suspension of judgement (cf. *PH* I.188–91). Versions of the negative position receive by far the most attention here and, as often in ancient discussions, views that may actually warrant the label 'atheist', as we now understand it, are mixed with others, such as Protagoras', that we would classify as agnostic. One oddity of this exposition is that it overlaps considerably with the earlier list of deflationary views concerning the origin of our conception of God. The famous fragment of the satyr play, ascribed by Sextus to Critias, on the wise and clever person who invented God as a deterrent to unobserved bad behaviour, is cited here

<sup>31</sup> On the opening atheistic section in particular, see the detailed analysis of Runia 1996b.

<sup>32</sup> This is not the only place, in the longer work of which *Against the Physicists* is part, where Sextus is less than clear about his purposes in discussing the conceptions of things; another example is *Against the Ethicists* 21–41. For discussion of this case, and of the general difference between ΣΚΕΠΤΙΚΑ and *PH* in this regard, see Bett 1997: 62–4.



(54) but might just as well have gone in the earlier section; and Prodicus and Euhemerus, alleged here to be atheists (51–2), did appear in the earlier section, described in very similar terms but with a little more detail (17–18). Some parallels with the atheistic section in Aëtius make it likely that this material originally belonged in a summary of atheistic views, not in an account of the origins of our conception of God. Aëtius also quotes parts of the so-called *Sisyphus* fragment, though ascribing them to Euripides rather than Critias (1.7.2), and quotes several lines from Callimachus about Euhemerus, one of which Sextus (and no one else) also quotes, as well as mentioning two other usual suspects (Diagoras of Melos and Theodorus of Cyrene) who also appear in Sextus' list (Aëtius 1.7.1; *M* 9.51).<sup>33</sup> Again, it is not that there is anything wrong with such ideas appearing in the section on the origins of our conceptions; for arguments for the non-existence of God may very well proceed by means of *explaining away* belief in God – in other words, explaining how we could have come to believe that there is a God (of a certain character) even though there is not. What is problematic, and a sign of inexpert editing on Sextus' part, is simply that more or less the same material appears twice in close succession, with no acknowledgement of the repetition.

Once the positions have been outlined, the arguments on each side begin. And here again there are some peculiarities in the arrangement of the material. The arguments in favour are announced as being of four kinds (60): from universal agreement, from the order of the universe, from the absurd consequences of denying the divine, and from the refutation of opposing arguments. As often in Sextus, the Stoics are the Dogmatists most often cited, but others receive some attention as well. The first two kinds of argument proceed in an orderly sequence (61–74, 75–122), and the arguments from the absurd consequences of denying the divine then begin (123); in each case Sextus gives us a clear indication that one kind of argument has ended and the next one is beginning. The third kind of argument extends for just ten sections (123–32); the general form of these arguments is that if one does away with the divine, one must also accept the non-existence of numerous other things – piety, wisdom, justice, and various forms of prediction that depend on contact with the gods or knowledge of signs provided by them – which would be absurd. Whether

<sup>33</sup> Runia 1996b: 553–4, says that a common source *must* be involved for the Callimachus quotations. This seems to me too strong: is it impossible for two people to quote the same line of verse independently? But this and the other parallels taken together do strongly suggest a common source (although not one relied on slavishly by both authors, and perhaps not one drawn on directly by both; the language, order, etc. are not especially close).

the denial of such things is really absurd, or is really a necessary consequence of denying the divine, seems highly questionable. But the boundaries of the third part are nonetheless clear; Sextus ends by saying ‘but it is absurd to do away with so large a number of things that are actually (ᾗδῃ) believed in by all human beings’ (132). We are now almost at the end of the arguments for the existence of God. What has happened to the fourth type of argument, from the refutation of opposing arguments?

The sequence of positive arguments ends with an argument from the Stoic Zeno: ‘One might reasonably honour the gods; but one might not reasonably honour those who do not exist; therefore gods exist’ (133), followed by an objection and Stoic replies to it (133–6).<sup>34</sup> This is clearly an instance of refutation of opposing arguments, and it does not belong under any of the other headings. But it is not introduced as such; we are never given an introduction to the fourth type of argument. Instead Sextus simply says ‘Zeno also put forward an argument like this’ (133), and then, immediately after the discussion of Zeno’s argument, marks the end of the entire sequence of positive arguments (137).

What has happened is that the refutation of opposing arguments is interspersed throughout; except for the isolated final argument from Zeno, whose status Sextus does not clarify, it does not constitute a separate section of its own.<sup>35</sup> Already in the first section on universal agreement Sextus inserts an opposing argument, followed by a response to it (66–74). And the same thing happens several times in the section on the order of the universe (96–7; 108–10; 121–2) and once in the section on the absurd consequences of denying the divine (127–31, which occupies at least half of the section). Several of these passages, including the closing one about Zeno, follow a common pattern: the opponents offer an argument that they claim is precisely parallel in form to the argument just offered, but whose conclusion is plainly unacceptable, and the supporters of the original argument then give reasons for thinking that the purported parallel argument is not in fact parallel (96–7; 108–10; 133–6). In each place Sextus refers to the parallel argument by the term παραβολή (and to the procedure by the corresponding verb παραβάλλω);<sup>36</sup> and it looks as if this was a recognized technical term (see Philodemus, *On Rhetoric*

<sup>34</sup> For a fascinating and detailed examination of this argument, see Brunschwig 1994. I have registered a few doubts in Bett 1996: sec. II.

<sup>35</sup> Contrary to the opinion of the Loeb translator: see Bury 1936: 35, note b.

<sup>36</sup> 66–74 and 121–2 also share the same general strategy of deducing unwelcome conclusions from premises just used. But they are not referred to as παραβολαί and do not exhibit the same precise formal structure as the ones I have cited.

1.col. 2.17–20). There is reason to believe that this highly structured approach originated in critiques of a number of Zeno's syllogisms by his contemporary Alexinus, cited by Sextus in one of these contexts (108), with later Stoics, in particular Diogenes of Babylon (see 134), then supplying the counter-moves in support of Zeno, counter-moves that often took the form of subtle interpretations, favourable to Stoicism as they understood it, of what Zeno's original bold claims really amounted to.<sup>37</sup> This latter aspect fits nicely with Sextus' purpose at this point, which is not to provide opposing arguments of equal strength – that comes later – but to bolster the case in *favour* of the existence of God by showing ways in which it can deal with counter-arguments. We do, then, have arguments of all four of the types that Sextus signals at the outset of the positive part; but we do not have each type one by one, as both his preamble (60) and the structural markers through most of this part would lead one to expect.

The arguments against the existence of God (137–90) do not show any similar kind of structural oddity. It is perhaps surprising that these negative arguments appear to have nothing to do with the people labelled as atheists in the initial listing of possible positions. We are told in the earlier passage, for example, that Theodorus the atheist 'demolished the Greeks' ideas about the gods in a variety of ways in his treatise *On the Gods* (55), yet there is no hint that this work is being appealed to when Sextus comes to his own exposition of the negative side. Perhaps the details of these people's views were already somewhat hard to determine by Sextus' time; they do seem to be a collection of stock atheists all of whom lived centuries earlier. And perhaps Sextus is simply repeating what his source says about Theodorus' book, without having read it himself. But Sextus' remark at the end of the initial listing of positions, that we shall see what the sceptical position is when we have gone through 'the things contended from either side' (ἐκατέρωθεν τὰ ἐπιχειρούμενα, 59), certainly leads one to expect that the arguments to follow will have some connection with the parties to the dispute just enumerated. In fact, though, as is very often the case, Sextus' main focus is on positions and debates of the major Hellenistic schools. As others have noticed, the positive arguments draw largely, though not exclusively, on Stoic ideas, while the negative arguments are heavily indebted to Carneades and the Academic tradition; the degree of overlap with the positive arguments of the Stoic Balbus in book 2, and the negative arguments of the Academic Cotta in book 3, of Cicero's *De Natura*

<sup>37</sup> On παραβολαί, their particular association with critiques of Zeno, and the importance of Alexinus, see Schofield 1983.

*Deorum* is one of the things that makes this clear.<sup>38</sup> In one sense, then, Sextus' procedure here is by no means unexpected. But it is yet another example of how the unity and organization of the work leave something to be desired.

The arguments against the existence of gods ends with a series of sorites arguments explicitly attributed to Carneades (182–90). The general point is that if one accepts the existence of some generally recognized god, one is forced to accept the existence of an ever-proliferating list of gods, ending with things that it would be absurd to consider divine, which is then said to be a *reductio* of the original supposition.<sup>39</sup> Prior to this, the vast majority of the arguments take the form of suggesting that if God has some characteristic that we are bound to accept if we accept that there is a God at all, it follows that God is perishable (φθαρτός), which is a contradiction in terms.<sup>40</sup> Again the characteristics in question are largely associated with a specifically Stoic conception of God; God is an animal, God possesses various virtues of a particularly Stoic cast,<sup>41</sup> and so on. The central idea is generally that if one admits these characteristics, one is accepting that God is a sentient, active being, and that necessarily brings with it the possibility of things going wrong, or changing for the worse, from God's point of view – and change for the worse entails perishability. There are also occasional arguments in which a certain supposition – typically one of a pair of exhaustive alternatives – leads to the opposite result, namely that God is inanimate or inactive (148–9; 151; 181),<sup>42</sup> but that is equally repugnant to our conceptions of God. The upshot is that there is no way for all the features considered (at least by the Stoics, but by

<sup>38</sup> See Long 1990; Annas 2011. Long 1990: n. 5, has a very useful list of correspondences between *ND* 3 and the negative arguments in *M* 9, as well as a list of Stoic premises exploited, in typical Academic fashion, in Sextus' negative arguments. David Sedley has recently argued that one passage in particular of the positive section, 88–110, gives us an especially clear insight into the methods of the early Stoics; see Sedley 2005.

<sup>39</sup> See above, n. 21; on this section, see also Burnyeat 1982. I agree with Burnyeat that Sextus' presentation is 'relatively clear' and Cicero's fuller version (*ND* 3.43–52) 'confused and garrulous', despite preserving important information about what Carneades was up to (326–7); this is a rare case where *Against the Physicists* scores higher than another presentation of related material.

<sup>40</sup> The conclusions of these arguments are sometimes compressed to 'Therefore God is perishable; therefore God does not exist.' The link between these two claims is most explicit near the beginning – 'but this goes against the common conception of him' (143) – but is repeated more briefly numerous times (e.g. 147; 151).

<sup>41</sup> For example, courage is 'knowledge of things that are terrible and not terrible and in between' (*M* 9.158); μεγαλοψυχία is 'knowledge that makes one rise above circumstances' (161); and wisdom is 'knowledge of things that are good and bad and indifferent' (162). Cf. Stobaeus *Ecl.* 2.59.10–11 W; 2.61.15–16 W; 2.59.5–6 W respectively. Again see n. 5 in Long 1990.

<sup>42</sup> The argument that God does not speak (178–9) might perhaps be classified in the same group.

others as well) to be essential to God to be combined in the same being; so there can be no such being.

The arguments both for and against the existence of God have been discussed, either individually or as groups, in a number of fine recent studies; apart from the points already raised, I would have little to add to their treatments.<sup>43</sup> For this reason I have chosen not to provide a systematic analysis of these arguments in the main body of the chapter; both for this part of the text and for the remainder of the section assigned to me, the [Appendix](#) will serve that function. What I would like to discuss in the remainder of the chapter is the relation between the sceptical result to which the juxtaposition of these arguments leads and the ordinary practice of religion. This, too, has not lacked discussion in recent years. But in this case I am not as sanguine as some have been about whether a consistent position is available to Sextus.

### **Scepticism and ordinary religion: a problem**

Sextus has just one direct comment in *Against the Physicists* that bears upon this topic. Having completed the section on the conception of God, and introducing the question whether gods exist, he says 'For perhaps the sceptic will be found to be safer than those who philosophize differently; in line with his ancestral customs and laws, he says that there are gods and does everything that tends to worship of and reverence towards them, but as far as philosophical investigation is concerned, he makes no rash moves' (*M* 9.49). A similar remark occurs at the opening of the section on God in *PH* 3 (2), where it is the dogmatists' 'rashness' (προπέτεια) that is said to be the target of the arguments to follow; and the mention of 'ancestral customs and laws' also recalls Sextus' general account in *PH* 1 of how the sceptic can act. One of the four broad categories of 'appearances' by which the sceptic's life is shaped is 'handing down of laws and customs' (23). And that a religious dimension to such laws and customs is central is suggested by the example he gives of action prompted by them: 'we accept acting piously as good and acting impiously as bad, in terms of ordinary life' (βιωτικῶς) (24). Clearly, then, there is a level of everyday religious practice, including everyday religious speech, that is supposed to be unaffected by the sceptical arguments. That we have no choice but to suspend

<sup>43</sup> In addition to the articles by Annas, Brunschwig, Burnyeat, Long and Sedley cited earlier (cf. nn. 34; 38; 39), see section V, 'Academic views and criticisms', in Mansfeld 1999; Knuuttila & Sihvola 2000, esp. 127–32.

judgement whether gods exist is apparently no bar to the sceptic's continuing to observe the norms of ordinary Greek religion. This much is common to both works. But *Against the Physicists* includes an additional reference to the greater 'safety' of the sceptic as compared with the dogmatist. As Gábor Betegh has recently pointed out, the sceptic is certainly not alone among philosophers in participating in everyday forms of worship; Platonists, Stoics, Peripatetics and even Epicureans took part in the traditional cults as well<sup>44</sup> – this despite the fact that many of them were highly critical of aspects of traditional religion. We shall return to some of these cases later. But if they all engage in the same religious practice (including religious speech), why is the sceptic 'safer' than the others?

The mention of safety in connection with claims concerning the existence of God (in conditions of uncertainty) may seem reminiscent of Pascal's wager; and Sextus' point might be that one runs less risk of divine wrath (supposing gods do exist) if one avoids definite but possibly false views about the gods' existence or nature – but nonetheless worships them in the usual way – than if one holds and propounds such views. But there are other possibilities. One is that this posture makes one safer from disapproval (or worse) from one's fellow humans. If one offers definite views about the nature of the gods, one is liable to come into conflict with some aspect of traditional conceptions of them;<sup>45</sup> the sceptic avoids this by offering no definite views but conforming to the usual practices. Sextus' own argument in *PH* 3 (9–12) for the impiety of those who claim that there are gods looks like support for this reading, if we keep in mind that the entire section on God in *PH* 3 is directed against the rashness of the dogmatists; as we saw, Sextus' strategy is to argue that there is no possible answer a (dogmatic) believer may give to the question of the gods' providence that does not come into conflict with some aspect of the generally recognized conception of God. Another possibility is that scepticism makes one safer from worries stemming from the thought that one might be wrong<sup>46</sup> – worries to which Sextus takes the dogmatists

<sup>44</sup> Betegh 2006b: 637–8. See also Long 1990: 280. Long mentions, but does not clearly explain, the reference to safety.

<sup>45</sup> This is suggested by Sihvola 2006: 96. Sihvola adds another possibility: 'if the theory is supposed to support a certain form of religion but then gets refuted by argument, religion, too, loses credibility in the eyes of such a person who requires argumentative support for all her beliefs'. But philosophical theories about the nature of God usually seem too remote from the specifics of ordinary religion for this kind of attempt at, and failure of, support to arise.

<sup>46</sup> This was suggested in an earlier version of Annas 2011.

quite generally to be subject, but which are perhaps particularly pressing when it comes to religion. And yet another, supported by other uses of the word 'safe' (ἀσφαλής) in Sextus (*M* 2.52; 3.1; 7.151; 8.300, 374, 473), is that he is referring simply to intellectual safety; if you make no definite commitments, you are just less likely to be mistaken (with or without the element of worry) than if you do – in fact, you are guaranteed *not* to be mistaken.

Since Sextus says no more on the subject, it is difficult to know how to choose among these various possibilities (and they are not, of course, mutually exclusive).<sup>47</sup> But the mention of the sceptic's conventionally religious practice and utterances in close connection with the reference to safety does seem to suggest that at least part of why the sceptic is supposed to be better off is that by going along with the usual observances he avoids the risk of giving offence, either to gods or to humans. In other words, it seems to support one or both of the first two readings in the previous paragraph. But there is something very puzzling about this. If the dogmatists are potentially in trouble from the gods or from society for their committed but arguably heterodox views about the nature of the divine, why is the sceptic not also in trouble for his sceptical stance of non-commitment? Perhaps refusing to say whether or not there are gods, or what they are like if they exist, is *less* offensive than declaring that the gods are of a character arguably incompatible with how they are usually conceived; but it is far from clear why it would be wholly inoffensive. Sextus' answer will surely be that the sceptic 'says that there are gods and does everything that tends to worship of and reverence towards them'; in other words, that his scepticism does not affect his everyday religious observances. But as I noted, a dogmatist of virtually any stripe also 'says that there are gods and does everything that tends to worship of and reverence towards them'; why does that not get him off the hook just as effectively? If the answer is that the dogmatist's heterodox theoretical statements about

<sup>47</sup> The γάρ with which the sentence about safety opens might seem to promise some help on this question, since it indicates that the reference to safety is somehow explanatory of a point mentioned in the previous sentence. Keimpe Algra suggested that the γάρ lends some support to an interpretation in terms of intellectual safety, since the previous sentence has previewed a particular type of intellectual engagement with the question of the existence of the gods. I fail to see this; the previous sentence alludes to the upcoming discussion of the existence of the gods, but it offers no clues on the spirit in which that discussion is to be undertaken. Thus the γάρ seems to suggest that the sceptic's safety has something to do with his stance concerning the existence of the gods, but I cannot see what more can be gleaned from it. And this by itself is unhelpful; since Sextus is quite clear that most philosophers assert the existence of the gods, it is hard to see what advantage he is able to claim for himself over dogmatists as a group by 'saying that there are gods'.

the divine convict him of insincerity,<sup>48</sup> the counter-response must be that the sceptic's suspension of judgement convicts him of exactly the same thing. Possibly the dogmatist's theoretical statements and everyday religious utterances could be seen as contradicting one another, whereas the sceptic makes no statement that contradicts everyday religion. But on the face of it, there is at least a pragmatic inconsistency between suspending judgement about the truth of the sentence 'there are gods' and uttering that very sentence; and again, it is very doubtful that a sceptic's sitting on the fence would be in no way irksome to the divine or human authorities. (Fence-sitting may be a way to avoid rashness in philosophical contexts, but in everyday contexts it may sometimes be decidedly rash.)

Sextus' reference to the sceptic's greater safety is therefore difficult to make out, a point that has not, I think, been generally recognized.<sup>49</sup> He may perhaps be at risk of less severe disapproval than the dogmatists (though even this is open to question); but 'safer' suggests 'less liable to danger' rather than 'liable to less danger', and that case has not been made. But even if one dismisses the claim about safety as an isolated piece of bluster, there remains Sextus' profession of adherence to ordinary religion, and this is consistent in both works. And there is a serious question as to how to understand this. As we saw, this is just one aspect – though apparently a rather important one – of the sceptic's general adherence to his society's laws and customs. But the care Sextus takes, in both works, to remind the reader of his conventional piety at the start of his discussions of God's existence makes it look as if he sees a possibility that these discussions will be read the wrong way, as constituting an attack on ordinary religion. The worry is not unreasonable. As has often been pointed out, the ancient Greek category of 'atheist' was extremely capacious, covering people (if there were any) who actually believed there were no gods, people such as Protagoras who announced that they were not sure, and sometimes people such as Socrates, who, there is good reason to think, believed non-standard things about God.<sup>50</sup> And

<sup>48</sup> Sextus himself alludes to an inconsistency between the dogmatists' theological beliefs and their ordinary religious practice (*PH* 3.249). I thank Thomas Bénatouïl for alerting me to this passage.

<sup>49</sup> An exception is Sihvola 2006: 96, who criticizes Sextus for presupposing that 'there is a direct relation between theory and religion'; only on some such assumption are the dogmatists 'unsafe'. Sihvola does not pursue the idea that in that case the sceptic's suspension of judgement should render him 'unsafe' too. But this is perhaps because he holds that Sextus' account of the relation between theory and ordinary life is unclear quite generally (88–9, and cf. Knuuttila & Sihvola 2000: 136–40). He may well be right; at any rate, as the remainder of my chapter tries to illustrate, Sextus' remarks about religion do not help to clarify that account.

<sup>50</sup> For a recent account see Janko 2006 (48 on the term *ἄθεος* as applied to Socrates). On Socrates' religious views see also Burnyeat 1997.



clearly anyone accused of being an atheist was understood as believing something that undermined ordinary religion.<sup>51</sup> Suspension of judgement about the existence of the gods is by no means obviously beyond the scope of this elastic but damning term.<sup>52</sup> So Sextus has good reason to underline the fact that he is not saying anything intended to subvert ordinary religion.<sup>53</sup>

But how is this supposed to work? One way to address this question is to ask what exactly Sextus means by claiming that, in a religious context, the sceptic can do and say various things ‘in terms of ordinary life’ (*PH* 1.24) without violating suspension of judgement. A possible answer<sup>54</sup> is that the sceptic performs the *actions* involved in religious rituals but does not hold any of the beliefs that we might think are associated with them; he does these things because he has been raised in a society in which these things are done, but not because he *believes* these are the *right* things to do, or the things the gods want us to do. The things in question include sacrifices, dietary choices and other matters of religious behaviour, but they also include *saying* certain things in appropriate contexts. Whether they include saying the very words ‘there are gods’, as Sextus’ wording might imply, is less clear, since these are not exactly part of ordinary Graeco-Roman religious practice; but maybe he means that the sceptic says things *about* specific gods or the gods in general that would naturally be taken to *entail* the statement ‘there are gods’. In any case, the sceptic does not, on this interpretation, thereby express any belief, so there is no conflict between these utterances and the suspension of judgement he declares in his writings. This stance may be regarded as hypocritical or disingenuous, either because it involves him in saying things without believing them,

<sup>51</sup> When Socrates in Aristophanes’ *Clouds* says ‘Gods aren’t current coin with us’ (K. J. Dover’s translation of θεοὶ ἡμῖν νόμισμα οὐκ ἔστι, 247–8, in Dover 1970: 94), he is obviously saying something that the audience is supposed to take as an affront to ordinary attitudes. These words are perhaps a good example of the point about ‘atheism’ just above; having made an apparently blanket statement dismissing belief in gods, he immediately goes on to introduce Strepsiades to the true story about the divine, namely that the Clouds are in charge. What he is really opposed to, then – as the term νόμισμα is surely meant to imply – are the prevailing νόμοι about gods. But this is clearly just as bad as if he believed in no gods at all.

<sup>52</sup> Although, as I suggested on p. 39, the frequency of his reminders, in the section on God, that he is not denying the gods’ existence may also be understood as a cautionary move. Again, suspension of judgement could perhaps be viewed as less offensive than either outright atheism or unconventional positive views about divinity.

<sup>53</sup> I do not mean to suggest that Sextus was afraid of suffering the fate of Socrates. My point is just that he sees that his readers may take his sceptical procedure, applied to the question of the gods, as subversive of ordinary religion, and that his concern about this is supported by the way in which some earlier philosophical stances towards religion, including Socrates’, were received.

<sup>54</sup> See Barnes [1982a] 1997, esp. 84–6; Bailey 2002: 192–3.

or because it renders highly dubious his claim to be following ordinary life. It may also do little to ward off the suspicion that his philosophical utterances on the subject of the gods' existence are subversive of ordinary religious practice.

Another, more interesting and promising interpretation is that ordinary religious practice and utterance are in some way 'autonomous' with respect to philosophical theory about the divine. The clearest version of this that I have seen is by Julia Annas,<sup>55</sup> who proposes a distinction between theological beliefs, which are the province of philosophers, including the sceptic when engaging in philosophical debate, and religious beliefs and practices, which belong to ordinary people, including the sceptic when 'following ordinary life'. Theological beliefs, then, are concerned with questions of whether or not the gods really exist and what their true nature is, while religious beliefs are beliefs bound up with the everyday business of religion (such as, to use an example from elsewhere in Sextus, 'it is pious to sacrifice goats to Artemis, but not to Asclepius', *PH* 3.221). But the crucial point, on any version of the 'autonomy' view, is that the everyday level and the theoretical level do not interact with one another; everyday religious practice and utterance can go their own way without needing support, and without being vulnerable to attack, from philosophical argument. If this is the case, then Sextus' suspension of judgement and his everyday religious observances are perfectly compatible.

This interpretation fits nicely with Sextus' periodic insistence on being 'on the side of ordinary life' as against the theoretical pontificating of the dogmatists (e.g. *PH* 2.102). It also seems to fit nicely with the fact that in ancient pagan religion, it is the rituals themselves that seem to be primary, rather than affirmations of belief;<sup>56</sup> I shall have a little more to say about this later. The problem is that Sextus' own assumptions about the relation

<sup>55</sup> Annas 2011. I have discussed Annas' view in a little more detail in Bett 2009. Another version is Sihvola 2006; see also Knuuttila & Sihvola 2000. But Sihvola's version is not as clear. He talks (Sihvola 2006: 90) of the possibility of statements being 'true in a religious sense' while being untrue in a literal or philosophical sense. But he also talks (95) of Aristotle accepting everyday religious practice while also holding that religious myths are largely fiction. The latter is perfectly possible without accepting any conception involving the same statements as being true at one level and false at another. I say a little more about Aristotle in the next section.

<sup>56</sup> Annas 2011 restricts the 'autonomy' claim to ancient pagan religion, arguing that modern monotheistic religions require their adherents to accept some of what she calls 'theological' beliefs, that is, beliefs about the real nature of God. Sihvola 2006: 97 takes issue with Annas, claiming that a certain level of 'autonomy' can be found in the Judaeo-Christian tradition as well. I find it hard to judge between these competing positions, in part because it is often radically unclear what people who say they believe in God actually believe; on this see Dennett 2006: ch. 8, 'Belief in Belief'.

between ordinary religious beliefs and discussions of the divine among philosophers, as revealed by his sceptical examinations of the topic, seem not to conform to the idea of a division between two levels.

For one thing, the things that Sextus claims the sceptics say in everyday religious contexts seem to include the *same* kinds of things as are subjected to sceptical scrutiny: according to him, the sceptics say *that there are gods* (*PH* 3.2; *M* 9.49) and that they are provident (*PH* 3.2), but these are precisely the propositions that are undermined in the discussions that immediately follow. As I noted earlier, one might take Sextus to mean that the sceptic, in his ordinary religious practice, says things that *entail* there being gods, rather than saying the actual words 'there are gods'. But it really makes no difference whether or not this is so; if the sceptic takes himself to be *committed* by his everyday practice to asserting that there are gods, it is just as puzzling that the sceptical discussions are not supposed to upset that everyday practice as it would be if the everyday practice included that very assertion.

In addition, although Sextus does emphasize that his philosophical discussions are directed against the dogmatists, this does not prevent him from including the views of ordinary people alongside those of dogmatic philosophers in the mix of items to be placed in mutual opposition with a view to suspension of judgement. At the beginning of the discussion of the existence of God in *Against the Physicists* he lists as believers in God's existence 'most of the dogmatists and the common preconception of ordinary life' (*M* 9.50); these are then contrasted with the atheists and with the sceptical suspenders of judgement. It is true that the subsequent arguments rehearsed on the positive side of the issue are all dogmatists' arguments, including the argument that takes as evidence the universal belief in the divine. But this is hardly surprising, since *arguments* on this score are precisely the province of philosophers, not ordinary people; this does not negate the fact that sceptical suspension of judgement is presented as an alternative to ordinary people's belief in gods just as much as to dogmatists' beliefs in gods.

This point is reinforced at the end of the discussion. Sextus says that the opposing arguments from the dogmatists lead to sceptical suspension of judgement. He then says that to these oppositions can be added 'the lack of uniformity about the gods in ordinary life' (*M* 9.191). He goes on to say that 'Different people have different and discordant suppositions about them [i.e. the gods], so that neither are all of them [i.e. the suppositions] trustworthy because of the conflict between them, nor are some of them because of their equal strength' (192). Presumably this conflict is about the

nature and perhaps the number of the gods, since he has already said that ordinary people quite generally believe in the existence of gods. But the conflict and ‘equal strength’ among the alternative views nonetheless adds to the impetus for suspension of judgement about the gods’ existence because if no one view of the nature of the gods is of any greater plausibility than any other, one might well begin to wonder whether there are any gods at all. As we noted earlier, Sextus now cites as an additional point with the same force the impiety of many poetic depictions of the gods, a point brought out by Xenophanes’ criticism of Homer and Hesiod for the immorality of their depictions (192–3). Here too, the impiety being alleged is the impiety of *everyday* religious conceptions, not of philosophical conceptions of the divine; as Xenophanes himself says elsewhere, ‘everyone has learned from Homer from the beginning’ (DK 21B10), and Heraclitus says much the same about Hesiod (DK 22B57).<sup>57</sup> It seems clear, then, that Sextus takes ordinary religious beliefs to be relevant to the sceptical outcome of his whole discussion; while the arguments of the dogmatists are his main focus of attention, he does not take ordinary beliefs to be on a separate level from these, and therefore immune to the effects of his sceptical procedure.<sup>58</sup>

### Some possible solutions and their failure

So the ‘autonomy’ interpretation seems difficult to sustain in light of what Sextus actually says. He claims to be religious in the same way as ordinary people are religious; this includes doing certain things, such as sacrificing the right animals to the right gods, and it includes saying certain things, such as that the gods exist (or at least, saying things that entail such assertions). And yet the existence of the gods, among other general features of the gods such as their providentiality (*PH* 3.9–12), are precisely the topics on which his sceptical machinery is used to generate suspension of judgement. Sextus seems to recognize that his sceptical exercises in this

<sup>57</sup> By contrast, as we saw, the allegations of impiety in *PH* 3.9–12, like the whole of the section on God in *PH* 3, are addressed to the dogmatists. Note again (cf. n. 26 above) that Sextus’ use of the word θεόλογος in *Against the Physicists* does not imply a theoretical context; quite the opposite. See also n. 27.

<sup>58</sup> This is also true of *PH*, although the section on God at the beginning of *PH* 3 does not include the point. In the ethical part of *PH* 3 there is a discussion of inconsistencies in ethical and religious belief (218–32); and here too the beliefs placed in conflict with one another are ordinary religious beliefs as well as philosophical beliefs about God. The same applies to the ethical and religious ‘oppositions’ in the tenth mode in *PH* 1.145–63. I have not otherwise mentioned these passages because they do not correspond with anything in *Against the Physicists* (or any other portion of the longer work to which *Against the Physicists* belongs).

area might leave him open to criticism as irreligious; as noted earlier, this is the obvious explanation of the care he takes to emphasize up front that he is religious in the ordinary way, and that his quarrel is with the dogmatists. The trouble is that this does not seem consistent with the fact that ordinary religious beliefs (in general, not just a selected, perhaps non-Greek set) figure alongside dogmatic theological positions in the material at which the sceptical machinery is directed.

This is not the only case where the beliefs of ordinary people are among the beliefs from which Sextus says the sceptic suspends judgement. Another is the case of beliefs to the effect that certain things are good and bad. This is a very important subject for Sextus, because it is beliefs on this subject that he takes to be most responsible for the worry from which sceptical suspension of judgement sets one free; this is stressed in the opening section of *PH* 1 (27–30), and in the ethical section of *PH* 3 (235–8) as well as, at much greater length, in *Against the Ethicists* (*M* 11.110–67). Now, in the first of these passages he specifies that it is ordinary people (ἰδιῶται, 30) – not just philosophers – who hold that certain things are by nature good or bad, and who are therefore subject to the worry that the sceptic manages to avoid. In this case, then, Sextus does not claim to be fully in harmony with ordinary life; while the laws and customs of his native land may shape the sceptic's behaviour, including when he is confronted with appalling ethical dilemmas (*M* 11.164–6), he lacks the additional component of belief that both ordinary people and dogmatic philosophers have, and this makes all the difference.

Given the fact that ordinary religious beliefs as well as dogmatic beliefs about the gods serve as material for sceptical scrutiny, one might have expected that, at least in part, the case of religion would be parallel to this ethical case. Certainly one could imagine a distinction being drawn between an unreflective following of religious tradition, and a following of that tradition that is accompanied by intellectual commitment – which might itself vary in degrees of explicitness or strength – to its truth or correctness. It would surely be open to non-philosophers to occupy any position on this spectrum of attitudes. And, one might say, the more reflective end of the spectrum would parallel the ethical case just mentioned, where ordinary people are said to hold the belief that things are by nature good or bad. And this in turn would allow Sextus himself to go along with ordinary religious practices in the unreflective manner, while distancing himself from the more reflective type of religious attitudes adhered to by some non-philosophers, grouping these alongside the religious utterances of philosophers in his juxtapositions

of opposing views – views about which his own attitude, without exception, is suspension of judgement.

All of this would indeed be possible and would amount to an entirely consistent position. But Sextus shows not the slightest hint of going in this direction. There is no sign that he conceives of any distinction between different types of religious attitudes on the part of non-philosophers. On the contrary, the phrase he uses to refer to the non-philosophical view that gods exist, the view that is among those on which he suspends judgement, is ἡ κοινὴ τοῦ βίου πρόληψις, ‘the common preconception of ordinary life’ (*M* 9.50); this strongly implies that there is just one relevant non-philosophical attitude, and it certainly offers no support for the idea that what is meant is an attitude on the more reflective end of a spectrum of possible attitudes. Thus Sextus gives us no indication that the non-philosophers’ religious attitude here referred to, on which he tells us that the sceptic suspends judgement, is any different from the non-philosophers’ religious attitude with which he elsewhere aligns himself. The ethical parallel is not, then, in the end helpful in elucidating Sextus’ stance towards religion, and we are back in the uncomfortable position we were in before. On the one hand, Sextus suspends judgement about a whole range of positions on the existence of god, including the ordinary person’s view that there are gods; yet, in addition, he arguably states, and at least strongly implies, that his own stance in ‘saying that there are gods’ (*M* 9.49) is no different from that of the ordinary person.

It may strike us as curious, in any case, that Sextus emphasizes declarations of the gods’ existence as much as he does. As noted earlier, it is by now something of a commonplace that one should not think of ancient pagan religion as centred primarily around beliefs; what is most basic is the rituals themselves, and these did not necessarily – and in some cases, clearly did not in fact – carry with them any particular beliefs about why they were to be performed, or about the character of the gods in whose honour they were being performed.<sup>59</sup> And this might seem to fit rather

<sup>59</sup> For brief discussion, and further references, see Obbink 1989: n. 61 and accompanying text. This picture of ancient pagan religion can no doubt be exaggerated, just as it is possible to exaggerate the element of doctrine, as opposed to ‘orthopraxy’, in many branches of modern religion. It is also surely true that religion in Sextus’ time differed in important ways from religion in the fifth century BC, which is the period about which claims concerning the priority of practice are most often made. My point is simply that however broadly such claims properly apply, they do not help Sextus (though they might seem tailor-made to do so), because his own conception of ordinary religion is to a significant degree doctrinal; otherwise he could not include ordinary religion alongside philosophical conceptions of the gods in the way that he does.

well with Sextus' description of his own religious attitude as a simple product of law and custom; he engages in certain sacrifices and dietary habits because those are the things he was raised to do – purely as a matter of culture or tradition, without any beliefs to the effect that these are the *right* things to do – and so too, one might say, did practitioners of ancient religion in general, if much modern scholarship on the subject is on the right lines. But this does not fit with what Sextus himself says (rightly or wrongly) about ordinary religious practitioners, and it sits uneasily with some of what he says about his own religious practice. Whatever modern scholarship may tell us, on Sextus' picture ordinary people do *not* merely go through rituals as a matter of custom; they also hold beliefs about the gods, and these beliefs are among those on which the sceptic suspends judgement. And Sextus' own religious practice, which he presents as in conformity with ordinary practice, includes saying certain things that are among the very things on which he elsewhere induces suspension of judgement. So unless Sextus leaves his scepticism at the door when he enters religious precincts – which would hardly square with his insistence on scepticism as a way of life, and with his religious practice as itself an instance of that sceptical way of life – it follows that he lacks certain beliefs that he takes ordinary religious practitioners to hold, and he says certain things in religious contexts that he does not actually believe.<sup>60</sup>

As we have already seen, Sextus is by no means the only ancient Greek philosopher who had attitudes towards the gods that look as if they are at odds with ordinary Greek religion, but who nonetheless engaged in

<sup>60</sup> Might Sextus say 'there are gods', 'the gods are provident', etc., and intend these merely as claims about how things *appear* to him? (This suggestion was made to me by Svavar Hrafn Svavarsson.) He does sometimes say that he is using 'is' to mean 'appears' (*PH* 1.135, 198; *M* 11.18), and he implies that this is common sceptical practice. But, first, if this is what he is doing here, then he does not avoid the accusation of disingenuousness. For in this case he is not, by his own account, 'following ordinary life', since he certainly does not understand ordinary people to intend these statements as appearance-claims. (If he did, then he could not think ordinary religious opinions belonged in the discussion of whether there really are gods.) Second, the claim that there are gods has about it the inherent air of a claim about how things really are; after all, that is why it is a fit subject for sceptical examination in the first place. But Sextus does not in general issue his own statements (to be understood as merely appearance-claims) about such topics. He does not, for example, say 'there is [i.e. appears to be] a criterion of truth' or 'there are [i.e. appear to be] causes'; rather, he avoids saying anything at all in his own person about these subjects. So if 'there are gods', as spoken by Sextus, were to be understood as 'there appear to be gods', this would be an exception to the general pattern, which one might expect him to signal. On the other hand, he would also have good reason to keep quiet about it; for signalling it would again expose him to the other objection, that he is not really in tune with ordinary views, at least as he understands them. And so, while it is not impossible that this is Sextus' intention, it is not, in the end, a satisfactory response to the problem.

ordinary religious practice.<sup>61</sup> The Epicureans hold that ordinary religious beliefs are wrong, and disastrously so, on certain crucial points; most centrally, it is wrong to think that immortal and blessed beings would take the slightest interest in human affairs. For this reason (that is, because a purely uninvolved and inactive being would be no god at all) and perhaps for other reasons, some in the ancient world accused Epicurus of atheism, as indeed Sextus himself testifies in his review of actual or possible deniers of the existence of god (M 9.58; see also, e.g., Cicero, *ND* 1.85; 1.123 (citing Posidonius); 2.76; Plutarch, *Adv. Col.* 1119E). And some recent scholars have even argued that, despite his insistence that there are gods, Epicurus' own view (apparently modified by later Epicureans) was that the gods do not exist in any objective or external sense but are mental constructs of ours.<sup>62</sup> Yet it is very clear, from Philodemus' *On Piety* and elsewhere, that Epicurus and other Epicureans took part, and enthusiastically recommended taking part, in ordinary religious practices.<sup>63</sup> However, it is not hard to see how Epicurus could justify this. For the notion of God as immortal and blessed – which is also central to ordinary religious ideas – is one to which he does remain attached, and which he considers to be a powerful source of inspiration as we aim for *ataraxia* in our own lives. And the traditional rituals – provided that one approached them with the correct attitude – might very well have seemed to him an appropriate vehicle for that inspiration.

Aristotle is somewhat more dismissive of ordinary religious ideas. In the course of his discussion of the divine unmoved mover in *Metaphysics* 12, he does acknowledge that ordinary religion preserves a core insight into the

<sup>61</sup> In this paragraph and the next I am in part responding to the adherents of the 'autonomy' interpretation. Annas 2011 takes Epicurus and Aristotle as support for a distinction between theological and religious beliefs; Sihvola 2006 takes Aristotle and the author of the fragment usually called the *Sisyphus* fragment as support for his version of autonomy. I agree with much of what they say and have learned a lot from both. But I do not agree that any of these authors accepts or relies on a distinction between types or levels of belief; in each case, the particular mix of philosophical theories and attitudes to everyday religious practice can be made sense of without reference to any such distinction. However, my main reason for introducing these other cases is to indicate that none of them helps us to make sense of the particular mix of these things that we find in Sextus.

<sup>62</sup> See Long & Sedley 1987: vol. 1, commentary on section 23. This view is accepted by Obbink 1989. Purinton 2001, while disagreeing with Long and Sedley on important points, nonetheless agrees with them on the central point that the Epicurean gods are not 'observer-independent living things' (231, his emphasis). I do not mean to suggest that this view is orthodox in contemporary scholarship; I simply cite it as an interpretation that, if correct, would place Epicurus strikingly at odds with ordinary views, but that does nothing to call into question the rationality of his adherence to ordinary religious practice.

<sup>63</sup> See Obbink 1989, esp. 199–202; and Obbink 1996: 1–23.



divinity in nature (1074a38–b3). But he then says that the rest of traditional conceptions are a ‘mythical [i.e. fictional] addition’ (μυθικῶς . . . προσῆκται, 1074b4) useful for reinforcing law-abiding behaviour. Yet this does not prevent him from directing in his will that large stone statues to Zeus and Athena be set up in fulfilment of a vow he had made (Diogenes Laertius 5.16), which reads like a conventional religious gesture of a wealthy Greek.<sup>64</sup> But here, too, the practice can be seen to make sense in light of the theory. First, like Epicurus, Aristotle does think there is *something* right about ordinary religious ideas – just as he thinks there is something right about most ordinary ideas – and ordinary religious practice might have seemed to him an appropriate method for expressing the truth those ideas embody. But second, if one thinks ordinary religion is a valuable device for maintaining order in society, it may make sense for one to engage in and encourage it even if one thinks it depends on false beliefs. Indeed, even someone who held the view expressed in the dramatic fragment that *Against the Physicists* ascribes to Critias (*M* 9.54) might very well see it as sensible to engage in ordinary religious practices (and to ‘say that there are gods’). On this view, unlike on Aristotle’s, God is a fiction through and through; but the fiction nonetheless has great social utility – provided, of course, that its fictionality does not become widely known.<sup>65</sup>

Sextus, however, is not in a position to accept any of these rationales for his adherence to ordinary religion. For all of them require, at minimum, that one accept certain states of affairs as genuinely good or bad. Some of them also require a certain amount of theorizing about the nature and purpose of society. And some of them require that one accept some aspects of ordinary religious beliefs as correct, that is, true to how things are in reality, which is precisely what he does not do. The fact that other philosophers besides Sextus call ordinary religion into question while still outwardly – and, in some cases and to some degree, even inwardly – accepting it does not help us to explain or justify his stance on the matter.

Nor is it possible to explain his stance along fideist lines. Earlier I mentioned Pascal’s wager as a possible and partial analogy to Sextus’ remark in *Against the Physicists* that his position with regard to religion is

<sup>64</sup> As pointed out by Annas 2011.

<sup>65</sup> Sihvola 2006: 91 tentatively ascribes to the author (it should perhaps have been the character in whose mouth the words of the fragment are put) the view ‘that the religious stories are myths, i.e. untrue in a literal sense but perhaps true in a special religious sense’. I see no basis for the last part of this; the fragment simply says that they are false. It is useful that people believe in them, but that fact has no tendency to support their truth, whether in a special sense or in a normal one. On the difficulty of pinning down what the author is doing in this fragment, see Bett 2002: 251–4.

‘safer’ than that of the dogmatists. However, the result of Pascal’s wager, if one carries it through successfully, is that one comes to have faith in God despite the impossibility of getting beyond sceptical impasse about God’s existence at the level of intellectual argument.<sup>66</sup> And the idea of making oneself hold a belief on no rational grounds – a belief about the very *same* thing on which one has previously come to suspend judgement as a result of sceptical argumentation – is about as far from Sextus’ approach as it is possible to imagine.

Finally, some in modern times, such as Wittgenstein, have argued for an expressivist view of religious utterances, according to which they are not statements of beliefs in any straightforward sense. In addition, some have regarded everyday discourse as somehow ‘insulated’ from the effects of sceptical argument, so that the very same form of words – such as, for example, ‘I know I left my keys on the table’ – could be seen as perfectly acceptable in an everyday register, but highly questionable in the philosophical register;<sup>67</sup> one could perhaps imagine some analogous strategy with regard to religious discourse. But it is clear that neither of these sorts of moves is available to Sextus. By his account, ordinary people say that there are gods, and they mean just the same by that as do philosophical dogmatists who use the same words. Ordinary religious discourse does, then, in his view state beliefs, and it is not insulated from the philosophical realm.

This is not to deny that there may be a level of everyday belief that is immune from sceptical argumentation, and that the sceptic may perfectly well adopt. The exact nature of the sceptic’s everyday beliefs, if any, is a central and unresolved issue in the interpretation of ancient Greek scepticism.<sup>68</sup> But although Sextus insists that he is in conformity with everyday attitudes regarding religion, *this* is not a case where he professes beliefs in an everyday context that can be considered immune from the effects of his scepticism. Rather, it is a case, like that of beliefs about what is really good and bad, where the beliefs of ordinary people – at least, as he himself interprets them – touch on the real nature of things and are therefore vulnerable to sceptical scrutiny. So despite his claim to be in tune with ordinary life, he cannot consistently hold some of the religious beliefs that, on his own view, ordinary people hold.

This is a disappointing conclusion: Sextus does not, in the end, have an acceptable story to tell about the relation between his approach to everyday

<sup>66</sup> On this see Penelhum 1983, esp. 304–5. <sup>67</sup> See Clarke 1972.

<sup>68</sup> Most of the important essays on this subject are collected in Burnyeat and Frede 1997. See also Brennan 2000 and Perin 2010.

religion and his sceptical discussions about God. But at least, to return to a main theme in the earlier part of this chapter, *Against the Physicists* is not appreciably worse off in this respect than *PH*. I hope that my many rather negative assessments of Sextus, particularly in *Against the Physicists*, do not contribute to a sense that the study of this work is of little value. There are lots of reasons why the study of flawed works can be worthwhile – sometimes despite, but sometimes also precisely because of, their flaws.

## *Appendix: Structural overview of M 9.13–194*<sup>69</sup>

- 13: Introduction – the stakes in the discussion for dogmatists and for sceptics

### **A. 14–48: On the origins of our conception of God**

- I. 14–28: Dogmatic philosophers' views on the subject
  - 14–16: Unnamed exponents – gods as a fiction designed to keep order in society
    - 17: Euhemerus – divinity ascribed to themselves by leaders
    - 18: Prodicus – divinity ascribed to major beneficial aspects of the natural world
    - 19: Democritus – divinity ascribed to outsize (presumably anthropomorphic) images
  - 20–2: Aristotle – the conception of gods due to perception of (a) the soul's prophetic power in sleep and at the point of death (21) and (b) the orderly movements of the heavenly bodies (22)
  - 23: Unnamed exponents – the conception of God due to reflection on the human intellect and ascription of something similar, but greater, to the universe
  - 24: Democritus (and others unnamed) – the conception of God due to perception of meteorological and astronomical anomalies
  - 25: Epicurus – divinity ascribed to outsize anthropomorphic images in sleep
  - 26–7: Unnamed exponents – the conception of gods due to perception of the orderly movements of the heavenly bodies
  - 28: (some recent) Stoics – the conception of God arrived at by superlatively intelligent early humans
- II. 29–48: Objections to these views
  - 29: The variety of these views itself puts each of them into doubt
  - 30–3: Objections to the view sketched in 14–16

<sup>69</sup> Further notes on certain points of detail (in this section and in the entirety of *Against the Physicists*) may be found in Bett (2012). This also includes an outline of the argument, but a far less detailed one than I have provided here.

- (a) The process described presupposes, rather than explains, a conception of God (30–1)
- (b) The conception of God varies between cultures (32)
- (c) The process would require, *per impossibile*, a congress of all early humans (32)
- (d) Response to (b) and (c): perhaps each culture had a separate such process (which would also explain the differences in the resulting conceptions) (33)
- (e) Objection to the response: there is a core conception of God shared by all humans (33)
- 34–8: Objections to Euhemerus (cf. 17)
  - (a) Again the conception of God is presupposed rather than explained (34)
  - (b) Leaders' self-promotional activities tend not to outlive them (35)
  - (c) The only way they could achieve a divine reputation would be by assuming the identity of an already recognized divinity (35) (examples from mythology, 36–7)
  - (d) Conclusion (38)
- 39–41: Objections to Prodicus (cf. 18)
  - (a) The things thus ascribed divinity are obviously perishable, which is absurd (39)
  - (b) This view would lead to an absurd proliferation of the things ascribed divinity (including some humans) (40–1)
- 42: Objection to Democritus (cf. 19) – the *explanans* is more implausible than the *explanandum*
- 43: Objections to Epicurus (cf. 25)
  - (a) The same applies as to Democritus (cf. on 42)
  - (b) This does not explain why we came to a conception of *God* (including blessedness and imperishability), rather than of a giant human
- 44: Generalization of the last point to apply to all the proposed explanations
- 45–6: Response to the last objection – perhaps the notions of divine blessedness and imperishability originated by extrapolation from the notion of a happy human being
- 47: Objection to the response – this is circular reasoning, since the notion of a happy (*eudaimōn*) human being is parasitic on a conception of the divine
- 48: Conclusion and transition to the question of the gods' existence

## **B. 49–193: On the existence or non-existence of gods**

- 49: Introduction – the need to inquire into the existence of God in addition to the conception; the sceptic's greater 'safety' on this subject
- I. 50–9: Survey of opposing positions
  - 50: God does exist – 'Most of the dogmatists and the common preconception of ordinary life'

- 51–8: God does not exist
  - (a) Initial list of adherents (51)
  - (b) Euhemerus (51, cf. 17)
  - (c) Prodicus (52, cf. 18)
  - (d) Diagoras of Melos: his atheism the result of seeing his malefactor escape unharmed (53)
  - (e) Critias, including an extensive quotation usually thought to be from the play *Sisyphus* (54, cf. 14–16 for the same line of thought)
  - (f) Theodorus (no detail given) (55)
  - (g) Protagoras ‘according to some’: agnostic quotation; his condemnation, escape and death; Timon’s verses on the subject (55–7)
  - (h) Epicurus ‘according to some’ an atheist in private (58)
- 59: Suspension of judgement on the question – the sceptics (59)
- 59: Transition to arguments for the positive and negative positions
- II. 60–136: Arguments for the existence of gods
  - 60: Introduction – four main types of argument listed
  - 61–74: Argument ‘from the agreement among all humans’
    - (a) The universality of religious practice as testament to the universality, and the truth, of a conception of the divine (despite differences in specifics) (61)
    - (b) By contrast, the short duration of worship of (merely human) kings (62)
    - (c) The views of the wise: poets (63), philosophers (64–5)
    - (d) Objection: a universal conception does not establish truth – the counter-example of Hades (66); generalization (with further examples) concerning the internal inconsistencies in myth (67–70)
    - (e) Response to the objection: the conception of God’s existence has no such inconsistency (71); the beliefs about Hades are refutable on additional scientific or philosophical grounds, but the existence of the gods is supported on those same grounds (71–4)
  - 74–5: Transition to argument from design
  - 75–122: Argument from design
    - (a) The motion and design of the universe must ultimately be caused by some self-moving divine power (75–6)
    - (b) What produces rational beings (i.e. humans) must itself be rational (77)
    - (c) The world is unified (78–80), and its unifying principle must, given the character of the world’s changes and the presence in it of rational beings, be of the highest character (i.e. the highest recognized in Stoic theory) (81–5)
    - (d) Since there are ensouled animals on the land and in the sea, it is all the more likely that there are ensouled animals in the air (86), and therefore also likely that there are ensouled animals, of far greater powers (i.e. gods), in the heavens (87)

- (e) Cleanthes' argument: animals can be ordered in terms of superiority; but, though ranking higher than all other observable animals, we could hardly be the highest-ranked animal of all, given our manifest imperfections; so there must be a being superior to us, i.e. God (88–91)
  - (f) Xenophon's argument (allegedly, but in fact not always, quoting him): (i) the structure of a live human being excites much greater admiration than the design of human artworks, and thus belief in the existence of a far superior designing intelligence (92–4); (ii) in addition, by analogy with the physical elements, the presence of mind in the universe must extend beyond just human beings (94)
  - (g) Explication of the force of Xenophon's argument, concentrating solely on its second part (95)
  - (h) Objection: an unfriendly parallel case (96)
    - (i) Response to the objection: dismissal of the parallel (97)
    - (j) Reformulation of the second part of Xenophon's argument (98)
  - (k) Reformulation of the first part of Xenophon's argument (though presented as equivalent to j) (99–100)
  - (l) Zeno's argument, drawing on Xenophon: 'What puts forth seed of a rational thing is itself rational' (101)
  - (m) Elaboration and support of Zeno's argument (102–3)
  - (n) Another argument of Zeno: 'The rational is superior to the non-rational; but nothing is superior to the world; therefore the world is rational' (104)
  - (o) Quotations from Plato, *Timaeus* 29d, 30b, presented as equivalent to this argument of Zeno (105–7)
  - (p) Objection from Alexinus: an unfriendly parallel case (108)
  - (q) Response to the objection: dismissal of the parallel (109–10)
  - (r) A further Stoic argument from the orderly motion of the universe (111–14)
  - (s) Argument from the idea that the cause of something admirable is more admirable than the thing itself (115–18)
  - (t) Argument from the idea that any multi-part natural object (which would include the world as a whole) has a 'controller' (119–20)
  - (u) Objection: by this argument the earth and the air would qualify as gods (121)
  - (v) Response to the objection: this misunderstands the force of the term 'controller' (122)
- 122–3: Transition to argument 'from the absurdities that follow for those who do away with the divine'
- 123–32: Argument 'from the absurdities that follow for those who do away with the divine'
- (a) If there are no gods, piety, holiness, wisdom and justice (which cannot be understood except by reference to gods) do not exist – but they do (123–6)

- (b) A Pythagorean conception of justice as extending to non-rational animals – couched, however, in terms of the Stoic notion of all-pervading ‘breath’ (*pneuma*) (127–9)
  - (c) Rejection of the Pythagorean picture: if correct, it would extend justice, absurdly, to plants and stones (130)
  - (d) Vindication of the original argument a) (now ascribed to Stoics): it is the common *rational* nature of gods and humans that creates relations of justice between them (and therefore requires justice to be conceived in terms of a reference to gods) (131)
  - (e) If there are no gods, prophecy and other activities having to do with the reading of divine signs do not exist – but they do (132)
- 133–6: Argument fitting the description of the fourth and last type introduced in 60 – ‘from the refutation of the opposing arguments’ – but not announced as such
- (a) Zeno’s argument: ‘One would reasonably honour the gods; but one would not reasonably honour non-beings; therefore there are gods’ (133)
  - (b) Objection: an unfriendly parallel case – this argument would establish the actual existence of the wise, which the Stoics denied (133)
  - (c) Response to the objection by Diogenes of Babylon: dismissal of the parallel through a subtler understanding of the original argument’s second premise (134–5)
  - (d) Another way of dismissing the parallel, through an ambiguity in the term ‘honour’ (136)
- 137: Transition to arguments against the existence of gods (with a suggestion that they will prove to be of ‘equal strength’ (*isostheneia*) to the preceding ones)

### III. 138–90: Arguments against the existence of gods

- (a) Any god would have to be an animal (by Stoic reasoning); but an animal has senses, and a divine animal would have to have at least our five senses; but a being with senses experiences pleasure and displeasure; and a being subject to displeasure is perishable (which is contrary to the conception of God) (138–41)
- (b) A being with senses is subject to sense-perceptions that are distressing, which again entails perishability (142–3)
- (c) Having the sense of sight makes one subject to ‘separation and commingling’, which again entails perishability (144–5)
- (d) Sense-perception is a kind of alteration, which again entails perishability (146–7)
- (e) The divine cannot be either unlimited (because that would entail absence of motion or soul) or limited (because that would entail something superior to God) – but there is no third possibility (148–50)



- (f) The divine cannot be either incorporeal (which would entail inactivity) or corporeal (which would entail perishability) (151)
- (g) A divine being would have to have all the virtues; but it does not have the virtues of continence and endurance, which would involve abstaining from and withstanding certain things with difficulty; if God does not have these virtues, he has the corresponding vices, which is absurd; yet if he does have them, that entails perishability (152–7)
- (h) An entirely virtuous being would have the virtue of bravery; but this would mean that some things were fearsome to God, which would again entail perishability (158–60)
- (i) An entirely virtuous being would have the virtue of greatness of soul; but this would involve rising above circumstances – and a being that has to rise above circumstances is subject to distress and so perishable (161)
- (j) An entirely virtuous being would have practical wisdom (*phronēsis*), which is knowledge of what is good and bad and indifferent; but this would include knowledge of hardship, which presupposes experience of hardship (162–4); it will not help to suggest that hardship can be conceived by contrast with the experience of pleasure – pleasure itself presupposes experience of hardship (165); but susceptibility to hardship entails perishability (166)
- (k) An entirely virtuous being would have the virtue of good deliberation; but deliberation has to do with things about which one is unclear; and if there are things unclear to God, then he is subject to fear, which entails perishability (167–70)
- (l) If, on the contrary, nothing is unclear to God, he does not have skill (*technē*), which applies to circumstances of less than full clarity; but if he does not have skill, he will not have virtue, which (on the Stoic view) is or includes ‘skill relating to life’ (171–2); rehash of previous points, applied to the issue of God having or not having skill (172–3)
- (m) If God does not have practical wisdom (cf. j), he does not have moderation, which is defined in terms of it; besides, moderation would imply that God is subject to desires (which is assumed not to be the case); but the absence of these virtues implies the absence of virtue in general – and a being without virtue is no god (174–5)
- (n) The divine neither lacks virtue (which would entail defectiveness) nor has it (which would entail something superior to God) – but there is no third possibility (176–7)
- (o) The divine neither has speech (which would presuppose bodily organs, as well as the arbitrary choice of some particular language or dialect), nor lacks it (which would be contrary to common conceptions) (178–9)

- (p) The divine is either incorporeal or corporeal; on the first, see on (f) above; on the second, this would entail that it is either a compound (which would be perishable) or a simple body (which would be soulless and non-rational) – and there is no third possibility (180–1)
- (q) Sorites arguments from Carneades: if we agree that the generally accepted gods exist, we must, absurdly, admit as gods (i) every instance of natural running water, no matter how small (182–3), (ii) lengths of time (184), (iii) beings with ridiculously trivial functions (185), (iv) emotions (186–8), (v) stones (189); closing reference to other such arguments not mentioned (190)

191: Conclusion to arguments for and against the existence of God

IV. 191–3: The sceptical outcome

- (a) Sceptical suspension of judgement as the result of this face-off between opposing arguments (191)
- (b) This reinforced by the conflicting views about the character of the gods in ordinary life (191–2)
- (c) And also by the immorality of the gods as depicted in poetry and myth (and the consequent impiety of those depictions) (192–3)

194: Conclusion to the section on God and transition to the section on cause.

*Cause: M 9.195–330**Michael J. White***Introduction**

Sextus Empiricus' primary interest in philosophical arguments is in their psychological effect. As a Pyrrhonist, he regards arguments, at least those pertaining to obscure or non-evident (ἄδηλα) matters, not as the means for achieving a (more) adequate philosophical understanding of the matters in question but, rather, as so much argumentative material to be weighed on one side of a balance scale – against competing arguments on the opposite side – in achieving the psychological equipollence of *pro* and *contra* considerations pertaining to a particular issue (ισοσθένεια). This equipollence is intended to be propaedeutic to suspension of judgment concerning the matter (ἐποχή). When such a procedure is extended to all obscure matters, the ultimate result should be tranquillity (ἄταραξία), which is the Pyrrhonian *summum bonum*. In the first book of the *Hypotyposes* or *Outlines of Pyrrhonism*, Sextus explicitly states that, with respect to the investigation of nature or 'doing physics' (φυσιολογία) the Pyrrhonist aim is not to establish by reasoning and 'with firm confidence' any dogmas but, with respect to every matter transcending the immediate deliverance of the senses (that is, every non-evident or obscure matter), to oppose a conclusion established by argument to a contrary and 'equal' conclusion established by argument with an eye towards achieving tranquillity (*PH* 1.18). This approach lends itself to a rather quantitative or additive view of arguments, according to which the sum of many rather unimpressive arguments might well 'count' just as much as a single rather impressive argument. It can also yield what may appear to the contemporary philosopher to be a not very discriminating attitude on Sextus' part: any port in a storm, any argument for the sake of constructing a formal antinomy (ἐλεγχος). He is also quite willing to produce a jumble sale of arguments, with such arguments and their underlying assumptions drawn from diverse 'dogmatic' sources.

At the heart of Pyrrhonian *praxis* is the assumption that suspension of judgment, rather than ascertaining the truth, is the path to tranquillity. In the words of Myles Burnyeat,

[t]he great recommendation of Pyrrhonism is that suspension of judgment on all questions as to what is true and false, good and bad, results in tranquillity – the tranquillity of detachment from striving and ordinary human concerns, of a life lived on after surrendering the hope of finding questions on which happiness depends. (Burnyeat & Frede 1997: 112)

It seems that the Pyrrhonian assumption was that suspension of judgments pertaining even to theoretical issues that seem most removed from mundane practical affairs (such as those involved in physics or the investigation of nature – φυσιολογία) is necessary for the attainment of ‘happiness’ (i.e. tranquillity: ἀταραξία). Thus, Burnyeat’s claim about Sextus’ attitude towards suspension of judgment concerning the existence of motion also applies to suspension of judgment concerning the existence of causation: ‘Sextus’ concern is to ensure that the arguments against [causation] are no less, but also no more, effective than the arguments in favour of it’ (Burnyeat & Frede 1997: 108). It seems to me that, apart from the commitments involved in Pyrrhonian *praxis*, Sextus’ arguments will not be seen in quite the way that he sees them. From a different historical and philosophical perspective, those arguments may strike us in a very different way: features of the arguments that perhaps would not have been thought to be of great significance by Sextus catch our attention. This, I submit, is what happens when we examine his discussions of *aitia* (variously translatable as ‘causes’, ‘reasons’, ‘explanations’).

The thesis that I attempt to develop in what follows is a multipartite one. First: Sextus derives rhetorical advantage, when developing his *contra* case with respect to the existence of *aitia*, from conceiving of cause and effect in terms of the Stoic category of ‘things that are relatively disposed’ (τὰ πρὸς τί πως ἔχοντα). As we shall soon see in more detail, this is the genus of what we might call *external* relations. Second: from Sextus’ perspective, this argument is simply one part of an additive whole, the ultimate point of which is to develop a *contra* case with respect to the existence of causes and effects that is sufficiently strong to match the psychological effect of *pro* arguments – and, perhaps more importantly, our natural propensity to believe in the existence of causes and effects – and thus to produce equipollence of *pro* and *contra* considerations and suspension of judgment with respect to the existence of causes and effects. The ultimate goal, of course, in the case of the application of sceptical

*praxis* to causation, as it is with respect to its application to any other issue – is the *summum bonum* of tranquillity (ἀταραξία). Third: from a different philosophical perspective, for example the contemporary one, the core of Sextus' *contra* argumentation concerning causation may seem to be not so much a convincing refutation of the existence of the causal relation but, rather, an anticipation of the empiricist reconceptualization of the causal relation that was a part of the anti-metaphysical, Way of Ideas programme of classical British empiricists such as John Locke and David Hume.

### **The structure of Sextus' discussion of causation in *PH* 3 and *M* 9**

Sextus concludes the preceding section of *Adversus Mathematicos* 9, which has dealt with the gods and 'the divine' by claiming (*M* 9.194) that he has reached the point of suspension of judgment 'with respect to active principles' (περὶ τῶν δραστηρίων ἀρχῶν). It is clear that he thinks of divinities as pre-eminent instances of active causes; and he here announces that he will proceed to show in a 'more sceptical' (σκεπτικώτερον) discussion that the accounts of an 'active cause' and 'the passive' matter are both open to doubt. While it is far from clear to me what he means by 'more sceptical' discussion, one possibility is that he intends to emphasize that the following discussion will have wider and deeper sceptical implications concerning causation, in general – not just the sort of active causal principle represented by god or the deities. He begins this discussion at 9.195.

However, it is worth noting that parallel to this discussion of *aitia* in *M* 9 is a much shorter discussion at *Hypotypōseis* 3.17–29. In both places the *pro* arguments, in favour of the existence of causation, are given much less space than the *contra* arguments. The obvious explanation for this fact is Sextus' assumption that we have a much greater propensity to believe (in some sense of 'believe') in the existence of *aitia* (in some sense of '*aitia*') than we do to deny the existence of 'causes' *tout court*. So, less argumentative material is needed on the *pro* side to achieve the balance of equipollence or ἰσοσθένεια with respect to the *pro* and *contra* positions concerning the existence of causation.

Both the *Hypotypōseis* and *Adversus Mathematicos* contain an argument that is presented as the final, capstone argument of the relatively brief *pro* sections in the discussions of causation of the respective works. The argument is dialectical in the sense that it assumes an opponent who denies the existence of *aitia* and then attempts to refute this opponent's

negative claim by *reductio*. Crucially, the argument equivocates on two substantive terms often translated as ‘cause’ (or ‘reason’, or ‘explanation’). It employs both the feminine abstract noun αἰτία and the neuter adjective αἴτιον (plural, αἴτια) used substantively. Exactly what this linguistic distinction amounts to – indeed, whether it has any semantic force at all – seems to depend on the particular Greek writer and is, in many contexts, not clear.<sup>1</sup> In what follows, it seems most natural to translate forms of the noun αἰτία as ‘reason’ and to translate the substantive neuter (τὸ) αἴτιον as ‘cause’. The argument as it appears at *PH* 3.19 goes as follows:

Someone who says that there is no cause (αἴτιον) will be refuted. For if he says this ‘categorically’ (ἀπλῶς) and without any reason (ἄνευ τινὸς αἰτίας), he will not be credible (ἄπιστος ἔσται). But if [he makes his assertion] for some reason (διὰ τινὰ αἰτίαν), he posits a cause (αἴτιον) while wishing to do away with it, since he has given a reason (αἰτίαν) on account of which there is not any cause (αἴτιον).

Sextus’ argument is a destructive dilemma, which depends on its proponent’s finding an opponent who is willing ‘dogmatically’ to deny the existence of any *aition*. The argument is repeated in virtually the same terms at *M* 9.204, again as capstone of the *pro* arguments with respect to the existence of causation. Here the dilemma presented to the opponent is between denying the existence of any cause (αἴτιον) either ‘without a reason’ (χωρὶς αἰτίας) or doing so ‘with some reason’ (μετὰ τινος αἰτίας). Sextus expands on the first horn of the dilemma: if an opponent seizes this horn, he is, again, not credible (ἄπιστος) because of ‘its being no more appropriate for him to conclude what he does [viz. that no cause exists] than its opposite’. But if he seizes the second horn, denying the existence of any cause with some reason, ‘he is refuted’ (περιτρέπεται) because, ‘in saying that no cause (αἴτιον) exists, he is putting forth the existence of some cause (τι αἴτιον)’.

This argument<sup>2</sup> is in the style of a ‘Dialectician’ or Megarian such as Stilpo or Diodorus Cronus. A necessary condition of its validity is the

<sup>1</sup> I am indebted to Malcolm Schofield for urging me to pay closer attention to this linguistic distinction. In Frede 1980, Michael Frede points out that the Stoic Chrysippus is reported by Stobaeus to distinguish the two terms: an αἴτιον is an entity ‘in the world’ (a ‘cause’ in one common modern sense), whereas an αἰτία is a *logos* or account of an αἴτιον. As Frede says, Aristotle does not observe such a distinction in the meaning of the two terms, and Galen explicitly says that he uses the terms interchangeably (1980: 222–3). In both the *PH* 3.19 and the *M* 9.204–5 passages Sextus seems to be conforming, more or less, to the reported Chrysippean usage.

<sup>2</sup> By the allusion to Stilpo and Diodorus, I mean merely to point towards a sort of argument that is abstract, clever, startling in its conclusion, but ultimately not really convincing: that is, the reader strongly suspects that there must be something wrong with the argument even if diagnosis of its deficiency is difficult. As Malcolm Schofield has pointed out to me, Sextus himself categorizes very

assumption that any reason (αἰτία) that one might have for denying or asserting the existence of a cause (αἷτιον) is itself a cause of the assertion that one makes: that is, reasons for asserting something must themselves be (a species) of causes. That Sextus himself is clearly making this assumption is indicated by a logical gloss on the argument that he sets forth at *M* 9.205–6, which is formulated entirely in terms of the substantive αἷτιον. The argument has three premises: if some cause exists, then a cause exists; if it is not the case that some cause exists, then a cause exists; either some cause does exist or some cause does not exist. The conclusion, that a cause exists, follows by disjunctive syllogism. The first and third premises are logical tautologies. In effect, the argument that we have just been examining is intended to support the second premise. Sextus summarizes that argument by his claim that ‘a cause’s existing follows from a cause’s not existing, again, since one who says that no cause (αἷτιον) exists says that no cause exists moved by some reason (ὑπὸ τίνος αἰτίας)’. Of course, this claim is arguably false. Even if one stipulates that a reason for our making some claim is a cause of our making it and (more controversially) that if we do not have some reason for our making a claim, then there was no cause of our making the claim, there is still the following problem. My asserting, without a reason, that no cause exists, may not supply any grounds for the hearer to believe my claim. But it does not entail the falsity of my claim. In other words, my supposedly causeless assertion of the non-existence of causes is not equivalent to and does not entail the conditional that is the second premise of the argument, ‘if a cause does not exist, then a cause exists’ – which is indeed logically equivalent to ‘a cause exists’.<sup>3</sup>

In the short *Hypotyposes* passage, the remainder of the *pro* argumentation is of two closely related ‘commonsensical’ kinds. The observed

similar arguments, including the one at *PH* 3.23–4 discussed in the next note, as an instance of the first argument trope of Agrippa – arguments from διαφωνία (disagreement, inconsistency). What is not obvious is whether this form of argument includes arguments based simply on ‘empirical’ disagreement among dogmatists about some non-evident matter or whether it should be limited to arguments (such as these) where there seems to be some logical/conceptual *inconsistency* that results from the choice of either member of a pair (or any member of a larger group) of exclusive and exhaustive options. See *PH* 1.164–5.

<sup>3</sup> In Barnes 1983 Jonathan Barnes discusses an analogous dialectical argument at *PH* 3.23–4 *against* the existence of causes. Someone asserting the existence of causes is asked whether he does so ‘categorically’ (glossed as ‘on the basis of no rational cause’) or on the basis of some cause/reason. In the case of the first answer, the assertion of the existence of αἷτια/αἷτιαί is said to be ‘untrustworthy’; in the case of the second, it is said to beg the question. Barnes says of this argument that it seems fallacious if αἷτια (or αἷτιον) is understood in terms of efficient causation. But, he suggests, the argument is more effective if it is understood as being directed against ‘causation *tout court*’ (179) – which would apparently include reasons.

existence of nature (φύσις) in the Aristotelian sense – as characterized by increase, decrease, generation, destruction, and ‘process, in general’ (καθόλου κίνησις) – must be accounted for by ‘some kind of causation’ (κατὰ τινὰ αἰτίαν). ‘Moreover, if causation did not exist, then everything would come to be from everything, as chance would have it: for example, horses might happen to be born from flies and elephants from ants’ (*PH* 3.18). The *pro* causation section of *M* 9 expands upon the same theme that nature/change/regularity implies causation. The fundamental point of such arguments is not difficult or particularly technical: the regularities discernible in our everyday experience of the world around us imply some sort of *causal* structuring of that world (or of our experience of it).

But, as is not infrequently the case with respect to Sextus’ text, additional argumentative bulk does not yield greater philosophical cogency. I doubt that Sextus would go so far as to maintain that the *denial* of the existence of causation represents what the Stoics termed a ‘common notion’ (κοινὴ ἔννοια). Consequently, it is not surprising that, in addition to devoting considerably more argumentative space to the *contra* position concerning the existence of *aitia*, he also employs much more technical argumentation. Jonathan Barnes comments that he finds much of the *contra*-causation discussion of *M* 9 to be ‘rude and mechanical’ (Barnes 1983: 176), and I would not disagree. Most of the arguments *contra* causation have a distinctly rigid and formulaic character. The result is a sort of artificiality that divorces the arguments from what we take to be ‘real world’ cases of causation. Sextus’ penchant for such arguments perhaps derives from his expressed preference for general arguments as more ‘artful’ than arguments dealing with particular cases.<sup>4</sup> However, despite the potential tediousness of the exercise, there may be some value in setting out the basic, ‘bare-bones’ structure of argumentation in the long *contra*-causation passage in *M* 9. I therefore beg the reader’s indulgence with the promise that I shall eventually return to what seem to me to be the philosophical issues of most substantive interest in this material.

Starting at *M* 9.210, Sextus produces a number of ‘arguments from the elimination of cases’ against the existence of causes. In older terminology, these are destructive dilemmas; more properly, some of them assume the form of ‘destructive tetralemmas’, others ‘destructive trilemmas’, and so on.

Thus, at 210ff. we have the following argument: if cause (*aition*) exists, either (i) the corporeal is the cause of the corporeal, or (ii) the incorporeal

<sup>4</sup> See *M* 9.1–4.



is the cause of the incorporeal, or (iii) the corporeal is the cause of the incorporeal, or (iv) the incorporeal is the cause of the corporeal. None of the four alternatives is possible; hence it is not the case that cause exists. With respect to (i): 'the corporeal will never be the cause of the corporeal since both have the same nature. And if one is said to be the cause of the other inasmuch as it is corporeal (εἰ τὸ ἕτερον αἴτιον λέγεται παρόσον ἐστὶ σῶμα), the other one, being corporeal, will also certainly be a cause (πάντως καὶ τὸ λοιπὸν σῶμα καθεστὼς αἴτιον γενήσεται).' Elaboration of this consequence follows: 'since both are equally causes, there is nothing that is acted on or is passive (τὸ πάσχον); and without something that is acted on, there will be nothing that acts (τὸ ποιοῦν)'. With respect to (ii) the same argument holds. Also emphasized is the following point: 'if both partake of the same nature, why should this one be said to be the cause of that one rather than that one of this one?' With respect to (iii) and (iv): 'that which acts must touch (θιγεῖν) the matter that is acted on so that it may act, and the matter that is acted on must be touched so that it may be acted on; but the incorporeal is not of such a nature as to either touch or be touched'.

Another tetralemma occurs at 227–31. That which is moving (τὸ κινούμενον) is not the *aition* of that which is moving; nor is the stationary (τὸ μένον) of the stationary; nor is that which is moving the *aition* of the stationary or vice versa. The arguments for the four premises are developed in ways very similar to the ones employed to support the premises of the preceding argument.

At 232–6 we find a trilemma. 'If anything is the *aition* of anything, then either (i) the simultaneous (τὸ ἄμα) is the cause of the simultaneous, or (ii) the earlier (τὸ πρότερον) of the later (τὸ ὕστερον), or (iii) the later of the earlier.' (i) is not the case because of 'both being instantiated together, and this one's being no more productive of that one than that one of this one – since each one is the same with respect to existence'. (ii) is not the case because,

if when the cause exists, that of which it is the cause does not exist, the one is not yet a cause, not having that of which it is the cause (μὴ ἔχον τὸ οὐ αἴτιόν ἐστιν), and the other is no longer an effect, since it does not coexist with (μὴ συμπαρόντος) that of which it the effect. For each of these is a relative, and it is necessary that relatives coexist with one another rather than one preceding and the other following.

And (iii) is simply 'completely absurd' (ἄτοπώτατον).

At 236 there begins an actual *dilemma*. 'If there exists some cause, either (i) it is a cause independently (αὐτοτελῶς) and using only its own power or

(ii) it needs for this [in order to be a cause] the assistance of passive matter, so that the effect is understood to occur as a result of the conjunction of both.’ But in the case of (ii), ‘if one is conceived as relative to the other, and of these one is active and the other passive, there will be one conception; but they will be denominated by two names, the active and the passive. And on account of this, the efficacious (δραστήριος) power will not reside more in [the *relatum* said to be the ‘cause’] than in the one said to be passive.’ The reason for this consequence is that the power that is efficacious for bringing about the effect (a necessary condition of the effect) will not reside in one *relatum* any more than in the other one.

Another dilemma follows at 246–51. ‘If a cause exists, either (i) it has one efficacious power (τὴν δραστήριον δύναμιν) or (ii) it has many.’ (i) is not the case since, ‘if it had one [efficacious power], then it ought to affect everything alike and not differently’. But the sun, for example, has different powers since it causally affects different things differently. But (ii) is not the case ‘since then [a cause] ought to actualize all of [its powers] in all cases (ἐπεὶ ἐχρῆν πάσας ἐπὶ πάντων ἐνεργεῖν)’ of its causal action; but it obviously does not do so. The dogmatists’ usual reply to this last claim is that the effects that come to be through a given cause vary because of differences of (the kind of) things affected, difference of the distances involved, and suchlike. But those who make this response grant, almost without dispute, that ‘that which acts is not different from that which is acted on (τὸ μὴ ἕτερον εἶναι τοῦ πάσχοντος τὸ ποιοῦν)’. In effect, the opponents are admitting that the ‘conjunction of both (ἡ δὲ ἀμφοτέρων συνέλευσις)’ active element and passive element produces the effect. Thus, singling out the active element as cause – as opposed to the conjunction of the active and passive element – is absurd.

Still another dilemma begins at M 9.252. ‘If there exists a cause of something, either (i) it exists as separate from the passive matter or (ii) it exists along with it (ἥτοι κενώριται τῆς πασχούσης ὕλης ἢ σύνεστιν αὐτῇ).’ (i) is not the case, because, in that circumstance, ‘since the matter with respect to which it is said to be a cause is not present, the matter is not affected, because that which acts is not co-present with it’. In the case of (ii), ‘if the one were to join/couple with (συνδυάζοι) the other, the one said to be the cause either (a) itself acts only, and is not acted on, or (b) both acts and, at the same time, is acted on’. If (b), ‘each will be that which acts and that which is acted on. For in so far as [the cause] itself acts, the matter will be what is acted on. But in so far as the matter acts, [the cause?] itself

will be what is acted on. Thus, that which acts (τὸ ποιοῦν) will be no more active than what is acted on (τὸ πάσχον), and that which is acted on will be no more passive than what acts, which is absurd.' But . . . if (a), then either (1) it acts, only at the place of contact (κατὰ ψιλὴν ψαῦσιν) – that is, at the surface (κατ' ἐπιφάνειαν) – or (2) it acts by distribution/permeation (κατὰ διάδοσιν). If (1), 'it will not be able to act since surface is incorporeal, and the incorporeal is not naturally able to act or to be acted on'. But if (2) were the case the cause would either (1') 'go through solid bodies or (2') go through certain intelligible but imperceptible pores'. It is not the case that (1') because 'body is not able to go through body'. But neither is it the case that (2'), since this reduces to case (1) above.

Although the reader may be benumbed by now, Sextus is far from finished in having his way with him or her. Starting at about *M* 9.258, there occurs a sequence of what I term arguments 'by reduction'. By this I mean that the issue of the existence of *aitia* is 'reduced' to the issue of the existence of something else  $\Phi$ , where the existence of  $\Phi$  (or of  $\Phi$ s) is asserted to be a necessary condition of the existence of *aitia*. Sparing the reader the details, I note that the first arguments of this sort, extending from *M* 9.258 to 266, concern the existence of touching or contact (ἄφῆ). Sextus' assertion is that the existence of contact is a necessary condition of the existence of what acts (τὸ ποιοῦν) and of what is acted on (τὸ πάσχον). So he proceeds to argue from the non-existence of contact to the non-existence of the active and the passive, the existence of which he seems to hold to be a necessary condition of the existence of causation.

Beginning at *M* 9.266, Sextus concentrates on the concept of what is affected or acted on (τὸ πάσχον). He suggests that preceding arguments have rendered dubitable the active or acting cause (τὸ ποιοῦν αἴτιον), both considered by itself and considered along with what is affected by it. But, he says, he will now call into question the account given of the passive or what is affected (τὸ πάσχον), 'taken by itself'. He proposes (at 277) that something's being affected must be a matter either of addition (πρόσθεσις), or of subtraction (ἀφαίρεσις), or of alteration and change (ἐτεροίωσις καὶ μεταβολή) and proceeds to call into question the existence of each of these. In the remainder of the section with which I am concerned (to *M* 9.330), subtraction is dealt with in a disproportionately long and somewhat digressive discussion extending from 280 to 320. Addition is treated from 321 to 327. Finally, alteration and change are apparently (and quite summarily) disposed of in just a few lines of text at 328 by being reduced to

transposition (μετάθεσις), which is said to be merely the taking away (ἄρσις) of one thing and the addition (πρόσθεσις) of something else.<sup>5</sup>

Sextus concludes the long section of *M* 9 pertaining to the concepts of *aition* and of the passive/what is acted on (τὸ πάσχον) with an artful if perhaps somewhat strained transition to the next general topic of *M* 9, on ‘the whole and the part’. Subtraction seems to presuppose as a necessary condition the ideas of whole and part. And he has argued that the non-existence of subtraction (along with that of addition) implies the non-existence of τὸ πάσχον, which in turn implies the non-existence of any *aition* (and the non-existence of what is affected by it). So, if doubt can be cast on the coherence of the idea of part and whole, yet more trouble can be caused for the concept of causation.

At the end of the section on *aitia* and the active and passive – in his summary treatment of change, for example – even Sextus himself gives evidence of having tired of his topic. As I hope that the preceding discussion has substantiated, Sextus’ argumentation is exceedingly schematic and abstract–‘mechanical’, according to the characterization by Barnes. While most of his general arguments are clearly valid with respect to their form (the conclusions of the respective arguments logically *follow* from their premises), it is frequently difficult to assess their soundness (whether the premises are in fact true) because of the abstract and technical character of the premises. But Sextus is also not above invoking the occasional paralogism, which he must surely recognize as such. A choice example occurs at *M* 9.302–6 in his long discussion of subtraction (ἀφαίρεσις). If subtraction exists, it must be possible to subtract the lesser from the greater. So the concept of the lesser’s being included (ἐμπεριέχεσθαι) in the greater must be a coherent notion. Suppose, then, that 5 (the lesser) is included in 6 (the greater). Analogously, 4 would be included in 5, 3 in 4, 2 in 3, and 1 in 2. By an unstated transitivity premise, 4 and 3 and 2 and 1 (as well as 5) would be included in 6. By yet another unstated premise – an extremely implausible premise and the one that allows him to reach his desired conclusion – their sum, 15 would then be included in 6. So, in conclusion, it turns out that the greater is included in the lesser, which is impossible. Sextus opines that, if this were not bad enough, there is an obvious generalization of this argument with the conclusion that indefinitely great numbers are included in any finite number.

<sup>5</sup> This reduction, with its implicit mechanical account of alteration and change, had been anticipated earlier in the passage at *M* 9.279.

The occasional clever clinker of an argument such as this will not, I think, be a source of much embarrassment for Sextus. As I stated earlier, Sextus gives evidence of being most interested in the psychological effect of (mountains of) arguments rather than in exploring the details of individual arguments. If a given reader perhaps smiles at the occasional argument, surely there will be *other* arguments in the great heap that will give pause – that will contribute some degree to the doubt that will eventually, according to the Pyrrhonian faith, yield equipollence with respect to one's convictions concerning the existence and non-existence of causation. According to the same Pyrrhonian faith, repeated experience of achieving such equipollence with respect to other non-evident matters eventually yields suspension of judgment with respect to all non-evident matters. And, then, can the *summum bonum* of tranquillity be far from reach?

### The relativity of *aitia*

If one considers Sextus' discussion of causation from a perspective not influenced by any prior commitment to Pyrrhonian *praxis*, the idea of the relative nature of causation is particularly salient. Early in the *contra*-causation passage of *M* 9 Sextus invokes the relativity of *aition* and a Stoic example of causation. Something is the (corporeal) cause of something else (an incorporeal 'sayable' or 'property') to a third something (corporeal); for example, the lancet is the cause of cutting to the flesh (*M* 9.207; cf. *M* 9.211). At *M* 9.208 Sextus gives a very short argument: relatives (τὰ πρὸς τι) are only conceived (ἐπινοεῖται) and do not exist (ὑπάρχει) – as, he claims, he has established in his discussion of demonstrations. Consequently, an *aition*, as a kind of relative, is only *conceived* and does not actually *exist*. When one turns to the relevant passage in *Adversus Dogmaticos* 2 (*M* 8) pertaining to relatives, one finds Sextus arguing that the dogmatists agree concerning their definition: 'what is relative is what is *conceived* (νοούμενον) as being relative to something else'. They do not define 'the relative' as 'what *exists* (ὑπάρχον) as relative to something else' (*M* 8.454). He elaborates on the point by claiming that (according to good Stoic principles) nothing that exists can undergo 'any change or alteration' (ἀλλαγὴν τινὰ καὶ ἐτεροίωσιν) without being affected. But 'what is relative is changed without being affected and when no alteration occurs in it' (*M* 8.455–6). From the examples that follow, it is clear that Sextus has in mind what may be called *external* relations. A thing can be equal to and then cease to be equal to something else without itself being affected (e.g. because of an enlargement or diminution of the *other* thing); and it

can be below and then come to be above something else without undergoing any intrinsic change. Indeed, any sort of change with respect to a relation in which something stands becomes what has, in modern philosophy, been termed a ‘Cambridge change’ of that thing. Sextus emphasizes the relational status of an *aition* in *M* 9:

if an *aition* exists, it must have present that of which it is said to be the *aition* since if it does not have it present, it will not be an *aition*. Just as what is right in position is not right without there being present that thing relative to which it is said to be right, so an *aition* will not be an *aition* without there being present that thing relative to which it is conceived. (*M* 9.209)

Sextus’ doctrine, particularly in *M* 8, appears to involve a conflation of two classes of relations distinguished by the Stoics. In a passage from his commentary on Aristotle’s *Categories*, Simplicius argues that the Stoics distinguished between the genus of things that are relative (τὰ πρὸς τι) and the genus of things that are ‘relatively disposed’ (τὰ πρὸς τί πως ἔχοντα). The former genus includes ‘those things that, while they are disposed according to their own proper character, are somehow directed to something else’; the latter includes ‘those things that naturally obtain and then do not obtain without any internal change or alteration and which look toward what is external’.<sup>6</sup> Examples of relatives *simpliciter* given in the passage are knowledge, sensation and (slightly later in the passage) the sweet and the bitter. The point is made that what is sweet or bitter could not change with respect to its sweetness/bitterness without the change of some internal differentia (διαφορά) or power (δύναμις). (Apparently Simplicius has in mind a change in the *object* of perception, in what is perceived as sweet/bitter by some ‘fixed’ perceiver, although he elsewhere seems willing to allow that the *subject* of perception is what undergoes ‘internal change’.)

Examples given of ‘things that are relatively disposed’ are a son (and father) and the person standing on the right (and person standing on the left). A son can cease to be a son and the person on the right can cease to be the person on the right without undergoing any intrinsic, *internal* change or alteration – that is by undergoing only a Cambridge change.

Whether wilfully and disingenuously or not, Sextus appears to identify ‘what is relative’ (τὰ πρὸς τι) with the *latter* Stoic category described by Simplicius, that is, with ‘what is relatively disposed’ (τὰ πρὸς τί πως ἔχοντα). Indeed, at *M* 8.455 he gives as apparent examples of things that

<sup>6</sup> Simplicius, in *Cat.* 166.7–21, in *SVF* 2.430 (= LS 29c).

are *not* relative what is black and white and what is sweet and bitter, on the grounds that the change from one property to its contrary cannot occur without some internal alteration in the subject of the properties. Sextus proceeds to characterize quite explicitly what is relative *simpliciter* (τὰ πρὸς τι) as what is susceptible to change *apart from* any ‘internal’ (read: real) change: ‘But what is relative is changed apart from affect and when no alteration comes to be in it.’<sup>7</sup> This (mis)identification of the relative with the ‘relatively disposed’ makes it easier for him, in *M* 9, to argue for the non-existence of *aitia* as a species of relatives – of τὰ πρὸς τι.<sup>8</sup>

From a strictly logical perspective, Sextus could have concluded his *contra* argumentation pertaining to causation at *M* 9.209. His argument can be paraphrased as follows: no relation *simpliciter* (identified with a Stoic τὸ πρὸς τί πως ἔχον or external relation) exists. This is so because such a relation holds or fails to hold apart from any ‘real’ alteration or affection in its relata; and only what is susceptible to such alteration/affection really exists. Sextus concludes therefore, that (a) relatives do not exist.<sup>9</sup> From (a) and the additional premise that (b) *aitia* are relatives, it follows that *aitia* do not exist. Note that this is a ‘technical’ or ‘theoretical’ argument in the following sense. It depends both on a particular (Stoic) conception of existence and on a particular conception of relations. Only corporeal entities, which are susceptible to ‘internal’ affections/alterations – and, perhaps what is ‘immediately dependent’ upon such bodies and their changes – really exist. Since *every* relation is identified as *external* (that is, as what is ‘relatively disposed’, in Stoic terminology), none is ‘immediately dependent’ on the ‘internal’ affections or alterations of its relata.<sup>10</sup>

But, to reiterate my earlier claim, Sextus seems to be not as much interested in the soundness (or validity) of individual arguments – that is, in the formal, semantic properties of arguments according to either an ancient or a contemporary account of ‘formal, semantic properties’ – as he is in the cumulative psychological effect of a great heap of arguments.

<sup>7</sup> τὸ δὲ τι ἀλλάσσεται χωρὶς πάθους καὶ μηδεμιᾶς περὶ αὐτὸ γινομένης ἐτεροιώσεως (*M* 8.456).

<sup>8</sup> The point is not merely that Sextus treats as interchangeable the Stoic terms πρὸς τι and πρὸς τί πως. Much more significantly, he conceptually subsumes all relatives into the latter category, which makes much more plausible his contrast between what is relative and what ‘really exists’. For this contrast – in addition to the passages from *M* 8 and *M* 9 discussed in the text – see *M* 11.14.

<sup>9</sup> ὥστε εἰ τῷ μὲν ὑπάρχοντι συμβέβηκε τὸ μὴ χωρὶς πάθους ἀλλαγῆν ὑπομένειν, τῷ δὲ πρὸς τι τοιοῦτον οὐδὲν συμβέβηκεν, ῥητέον μὴ ὑπάρχειν τὸ πρὸς τι (*M* 8.457).

<sup>10</sup> There is some lack of clarity in Sextus’ texts between what contemporary philosophers would call a *relation* and the *relata* or things ‘standing in’ a given relation. The phrases τὰ πρὸς τί and τὰ πρὸς τί πως ἔχοντα suggest, I think, the *relata*. However, in many contexts, it seems clear that Sextus is talking about the relation. Perhaps the logical import of the phrase τὰ πρὸς τί is best captured by something like ‘things standing in a certain relation *R* *qua* standing in *R*’.

As we saw in the preceding section, the heap that he produces from *M* 9.210 to 330 is a characteristically promiscuous one. I believe that the attempt to impose any very simple, general interpretative schema on the heap that I described in that section would be a Procrustean task. Consequently, I shall hypothesize only that *some* of Sextus' arguments can be illuminated by invocation of his idea that cause and effect are to be treated, in effect, as 'things that are relatively disposed': τὰ πρὸς τί πως ἔχοντα. These arguments point up the difficulties that such a conception raises with respect to various beliefs and expectations we (and other assorted 'dogmatists') have concerning the nature of causation.

### Causal relations: dyadic or triadic?

The conception of *aition* that is suggested by its classification as a 'relative thing' (in the τὰ πρὸς τί πως ἔχοντα sense) is often that of one term in a *dyadic* relation: there is the 'cause' (αἴτιον) and there is its 'effect' (ἀποτέλεσμα). The second term of the relation is sometimes connoted by the word ἀποτέλεσμα in Sextus' arguments.<sup>11</sup> More frequently, it is merely implied by his use of the 'cause of . . .' locution: the noun αἴτιον followed by a noun (or some other nominative construction) in the genitive case. Yet, many of the arguments also appeal to the idea – which I suppose to be grounded in some commonsensical assumptions – that the causal relation is *triadic*. There is (1) the *aition* conceived as 'causal agent' (τὸ ποιοῦν); there is (2) something passive (τὸ πάσχον) on which the causal agent acts; and there is (3) the 'effect' as a *tertium quid* that results from this action. The triadic model is reflected in some of the more technical ancient conceptions of causation, such as the Stoic analysis of a body-producing-a-*lekton*-as-applied-to-some-other-body.

Jonathan Barnes has analysed what he takes to be the forms of Sextus' causal claims. According to his analysis, underlying the simple dyadic form is a 'more explicit, sentence, "The fire is cause of melting for the wax"; and that appears to be triadic in form,  $C(x,y,\phi)$ ' (Barnes 1983: 175). But, according to Barnes,

further reflection leads to the amalgamation of 'the wax' and 'melting', thus: 'The fire brings it about that the wax melts.' And the form of that may be given by:  $xC: \phi y$ . Finally, a fuller understanding of the causal relation

<sup>11</sup> Cf. Sextus' definition of '*aition*' at *PH* 3.14 as 'that through the activity of which the effect comes about' or, more literally, 'that because of which, acting, the effect comes about' (δι' ὃ ἐνεργοῦν γίνεταί τὸ ἀποτέλεσμα).



produces something like this: 'That the fire is hot brings it about that the wax melts.' And the full or canonical formula for expressing causal judgments is thus:  $C(\psi x, \phi y)$ .

I have laboured that point for two reasons. First, the matter is of some philosophical interest: in effect I have tried to father on the Believers [Barnes' translation of  $\delta\iota\ \delta\omicron\gamma\mu\alpha\tau\iota\kappa\omicron\iota$ , usually rendered 'the dogmatists'] – and on the Sceptics – the view that all causation is, at bottom, 'event causation'; that 'agent causation' is, so to speak, an elliptical version of event causation. For that view, as I understand it, is simply the thesis that ' $x C: \phi y$ ' is always expandable into ' $C(\psi x, \phi y)$ '. And the view seems to me to be both true and important (Barnes 1983: 175).

In effect, the introduction of 'event causation' into the analysis reintroduces a dyadic schema of causation: one event (e.g. that the fire is hot or the fire's being/becoming hot) is the cause of a subsequent event (e.g. that the wax melts or the wax's melting). This sort of dyadic analysis of causation in terms of cause-event and effect-event certainly facilitates the later, classical Empiricist analysis of causation as an *external* relation between the (idea of) cause and the (idea of) effect. Whether it represents, as Barnes believes, the 'underlying truth' of a notion of causation that is assumed either by Sextus or by his dogmatic opponents is another matter about which I myself am uncertain. However, it seems to me that Sextus does not clearly and *explicitly* distinguish dyadic and triadic paradigms of causation and, indeed, has little motivation to seek philosophical clarification with respect to such a non-evident ( $\alpha\delta\eta\lambda\omicron\nu$ ) matter. Rather, he switches freely but tacitly between the two paradigms in many of his *contra* arguments concerning causation.

A nice example occurs in his discussion of causation at *M* 9.213–17. It is the first of the *contra* arguments that I briefly discussed in the preceding section; and like so many of his other *contra* arguments, it is cast in what I earlier termed an 'abstract and schematic' form. Although this feature of the argument makes the soundness of the argument difficult to assess, it probably represents a good rhetorical strategy on Sextus' part. His goal of undermining the notion of causation would not be well served by appeal to concrete cases where we are actually predisposed to believe that causation obviously *is* present. Also like many of his other arguments in this section, the argument is in the form of a destructive dilemma (here, in fact, a 'tetralemma'): if causation exists, then either A or B . . . or H. But not-A and not-B . . . and not-H. Therefore, causation does not exist. The actual argument is as follows: if causation exists, then either (i) the corporeal is the *aition* of the corporeal, or (ii) the incorporeal is the *aition* of the

incorporeal, or (iii) the corporeal is the *aition* of the incorporeal, or (iv) the incorporeal is the *aition* of the corporeal. But none of (i), (ii), (iii) and (iv) is the case. Therefore, causation does not exist.

The paradigm of causation that is formally employed in the argument is the ‘straightforward’ dyadic-relation (A-as-cause-of-B) one. But the details of the argument, such as they are, are not so simple. Sextus’ argument that the corporeal is not the cause of the corporeal seems particularly problematic:

the corporeal [body] would never be the *aition* of the corporeal, since both have the same nature. And if the one is said to be the *aition* in so far as it is a corporeal thing, certainly the other corporeal thing will have been established to be the *aition* too. But, since both are equally causes, there is nothing passive (τὸ πάσχον); and if there is nothing being acted on, something that acts (τὸ ποιοῦν) will not be present. If, therefore, the corporeal is the *aition* of the corporeal, there is no *aition*. (M 9.214)

While the argument begins by assuming the conception of causation as the ‘simple’ dyadic relation between cause and effect, an additional complication soon appears. The fundamental idea is that an *aition* is something that ‘acts’ to produce its effect. But then, by what seems to be a principle generally accepted by the ‘dogmatists’, there must be some corresponding ‘passive element’. Sextus concludes that there cannot be such a passive element in the purported case of the corporeal-as-*aition*-of-the-corporeal and, hence, that such a form of causation cannot exist. But why not?

Although his exposition is, to say the least, condensed, Sextus may have had something like the following line of thought in mind. Let us suppose that we have an instance of body as *aition* of body. How are we to analyse this supposed phenomenon? One consequence of a relational analysis of causation is that for the relation (causation) to obtain, both relata must in some sense be ‘co-present’, just as, for something ‘to be on the right’, there must be two relata that are ‘co-present’, something on the right relative to something on its left. In the case we are considering, a body-*qua*-corporeal is supposedly the *aition* of a (distinct) body-*qua*-corporeal. Sextus appears to conclude that *either* of the corporeal relata of the supposed causal relation – so long as those relata are ‘co-present’ as relata must be – could equally well be said to be the cause, *in virtue of its corporeality*, of the corporeality of the other. If this conclusion is warranted and if Sextus were to assume the anti-symmetry of the causal relation, this

would be sufficient to obtain his conclusion, 'if, therefore, the corporeal is the *aition* of the corporeal, there is no *aition*'.

However, he rather complicates the argument by arguing that, since there is no basis (in terms of its corporeality) for distinguishing one relatum of the causal relation as *aition*, there is nothing that can be τὸ πάσχον (the passive element) and, hence, that there can be no causation. Is τὸ πάσχον the ἀποτέλεσμα or effect (as in the dyadic-relation paradigm in which the argument is originally formulated), or is it that which is 'affected' by the cause in such a way that the 'effect' is produced in it (as in the triadic-relation paradigm)? The issue is not clarified when Sextus claims that the impossibility of the incorporeal's being the *aition* of the incorporeal follows by the same argument: In brief, 'if both participate in the same nature, why should this one be said to be the *aition* of that rather than that of this' (*M* 9.215)? But, when he turns to his argument that the incorporeal cannot be the *aition* of the corporeal nor the corporeal the *aition* of the incorporeal, it is clear that he is appealing to the triadic-relation paradigm:

for that which acts must touch the affected [or passive] matter (τό τε γὰρ ποιοῦν θιγεῖν ὀφείλει τῆς πασχούσης ὕλης) in order that it may act, and the affected matter must be touched in order that it may be affected; but the incorporeal is not by nature such as to touch or be touched. (*M* 9.216)

The idea of a cause 'touching' its effect (ἀποτέλεσμα) would not seem to make much sense in terms of the dyadic-relation paradigm. But, it *does* seem to make sense to be concerned with whether something *qua aition* can 'make contact' with something (τὸ πάσχον) so as to act *on* it and thus produce some effect (ἀποτέλεσμα) 'in' or with respect to that πάσχον thing, as in the triadic-relation paradigm. Indeed, it is precisely such a concern that leads to the classical Cartesian problem in the history of modern philosophy of how (or whether) causal interaction can occur between (corporeal) *res extensae* and (incorporeal) *res cogitantes*.

Beyond its illustration of a certain rhetorical opportunism on Sextus' part, in terms of his shifting between the dyadic-relation and triadic-relation paradigms, this argument also introduces a general, recurring strategy in the *contra* arguments pertaining to causation. The relational conception of causation requires the co-presence, in some sense, of cause and effect. But our conception of the anti-symmetry of cause and effect, which is grounded in the idea of the *aition* as the actualization of an *active* potency, proves inconsistent with the co-presence of the causal relata.

This strategy is illustrated in an argument developed by Sextus at *M* 9.232–6, again a destructive dilemma (here, a trilemma):<sup>12</sup>

If anything is an *aition* of anything, either the simultaneous (ἄμα) is the *aition* of what is simultaneous, or the former of the latter or the latter of the former. But the simultaneous cannot be the *aition* of the simultaneous nor the former of the latter nor the latter of the former. Therefore there does not exist any *aition*. (*M* 9.232)

Sextus argues that the simultaneous cannot be the *aition* of the simultaneous since both ‘coexist’ (συνυπάρχειν); therefore, there is no reason to say that one is capable of originating the other (τόδε τοῦδε γεννητικὸν ὑπάρχειν) rather than vice versa, ‘since each has equal reality’ (ἴσην ὑπάρξειν) (*M* 9.233). But, the argument proceeds, ‘the former will not be productive of what comes to be later’ because an *aition* cannot be an *aition* in the absence of its effect (ἀποτέλεσμα), nor can the effect be an effect in the absence of its *aition*. Sextus emphasizes that this conclusion is due to the fact that cause and effect are relatives and ‘it is necessary that relatives coexist with one another (συνυπάρχειν ἀλλήλοις), and not that one precedes and the other follows’ (*M* 9.234). Of course, this argument would equally apply to the remaining case: the possibility that the latter should be the *aition* of the former. But Sextus here stresses that it is ‘most absurd’, from the perspective of common sense and experience, that ‘what does not yet exist should be the *aition* of what already exists’ (*M* 9.235).

The gist of the argument is that, while the status of an *aition* as a relative requires the ‘co-presence’ of its effect, this co-presence undermines the anti-symmetry between the ‘action’ of the *aition* and ‘passion’ of the effect that is demanded by our understanding of the causal relation. The theme is continued in a passage, beginning at *M* 9.237, which immediately follows the one we have been discussing. This passage, too, develops a destructive dilemma: ‘If there is any *aition*, either it will self-sufficiently be a cause, making use only of its proper power; or it needs the aid of the affected matter, so that the effect is understood to be due to the common coming-together of both’ (*M* 9.237). Sextus argues that neither alternative is possible. If the *aition* were to act ‘self-sufficiently’ (αὐτοτελῶς), then the

<sup>12</sup> Barnes 1983: 180–6 contains a sophisticated analysis of the temporal features of a somewhat similar argument at *PH* 3.25 according to which the ‘productive aspect’ of causation requires a cause temporally to *precede* its effect but, inconsistently, the ‘relative aspect’ of causation requires a cause to be *contemporaneous* with its effect.

cause ought *always* to be producing its effect, a consequence that, Sextus assumes, contradicts our actual experience of causal efficacy. But if an *aition* were to be conceived as something the action of which is relative – as in the second alternative – the consequence would be worse. In that case, there would be one, single conception (ἔννοια) of the active and passive relata, but they would be designated by two names. Sextus claims that, because of this fact, the ‘efficacious power’ (ἡ δραστήριος δύναμις) would not reside in what is called the *aition* any more than it would in what is called the passive relatum: for both are equally *sine quibus non* for the causal action. In other words, causal anti-symmetry, or the anisotropic character of causal action, would be lost. The inability to distinguish the active and passive relata, in the sense that *both* are necessary conditions of the causal effect is, I believe, significant for Sextus in precisely the way indicated by R. J. Hankinson:

this is to deprive the agent of genuine causal power. It does so, of course, only on the assumption that causal powers must be non-relational facts about things. Causal powers are supposed to be genuine properties of things: and Greek metaphysics standardly considers properties to be genuine just in case they were non-relational. Hence if Sextus can make good the claim that causal properties are intrinsically relational, perhaps he can thereby show, contrary to Dogmatic pretensions, that they do not really belong to the object [i.e. the *aition*] at all. (Hankinson 1998: 285)

### **Causation in classical British empiricism: a relation between ideas**

This elusive idea of ‘causal action’ is a paradigmatic instance of an ἄδηλον matter, something that transcends our direct and immediate experience. As such, of course, it is an object to which Sextus’ sceptical method can be appropriately applied. Although the ultimate philosophical motivation is obviously different from that of Sextus, the development of an ‘empiricist’ conception of causation associated with the Way of Ideas tradition reprises some of the themes of Sextus’ *contra* arguments pertaining to causation. In particular, scepticism concerning what Sextus calls the δραστήριος δύναμις, the ‘efficacious power’ of causation, characterizes the Way of Ideas analysis. What experience, in the form of our ideas, gives us is only the ideas comprising a particular cause, the ideas comprising its particular effect, and a radically external relation between the two (collections of) ideas – in other words, something along the lines of the Stoic conception of things (ideas, in this case) that are relatively disposed, τὰ πρὸς τί πως

ἐχοντα. In the words of John Locke's *An Essay Concerning the Human Understanding*, we have,

from what our Senses are able to discover, in the Operations of Bodies on one another, got the notion of *Cause* and *Effect*; viz. That a *Cause* is that which makes any other thing, either simple *Idea*, Substance, or Mode, begin to be; and an *Effect* is that, which had its Beginning from some other thing . . .

. . . Thus a Man is generated, a Picture made, and either of them altered, when any new sensible Quality, or simple *Idea*, is produced in either of them, which was not there before; and the things thus made to exist, which were not there before, are *Effects*; and those things, which operated to the Existence, *Causes*. In which, and all other Cases, we may observe, that the Notion of *Cause* and *Effect*, has its rise from *Ideas*, received by Sensation or Reflection; and that this Relation, how comprehensive soever, terminates at last in them. For to have the *Idea* of *Cause* and *Effect*, it suffices to consider any simple *Idea*, or Substance, as beginning to exist, by the Operation of some other, without knowing the manner of that Operation. (Locke 1975: book II, ch. xxvi, §§2–3)

The fact that the relata of the causal relation are (collections of) ideas, and that these ideas are ultimately resolvable into atomic, simple ideas, lends support to Locke's conception of the causal relation as a dyadic external relation. Simple ideas are what they are; and their relations to other simple ideas in no way impinge on that internal nature or character. Thus, an idea (simple or complex) *A* can stand in or fail to stand in a 'causal' relation to idea (simple or complex) *B* without any change in the 'content', so to speak, of either *A* or *B*. To cite one of Locke's examples, 'the finding, that in that Substance which we call Wax, Fluidity, which is a simple *Idea*, that was not in it before is constantly produced by a certain degree of Heat, we call the simple *Idea* of Heat, in relation to Fluidity in Wax, the Cause of it, and Fluidity the Effect' (Locke 1975: II, xxvi, §1). So, Locke's Way of Ideas analysis of causation understands it to be, in Stoic terminology, a kind of relative disposition: cause and effect are related in the manner of 'things that naturally obtain and then do not obtain without any internal change or alteration and which look toward what is external',<sup>13</sup> in just the way that 'what is on the left' is related to 'what is on the right'.

David Hume also conceives of causation as a dyadic external relation. In Part III of the first book of *A Treatise of Human Nature*, Hume divides his seven philosophical relations into two classes. One class (containing the

<sup>13</sup> Simplicius, in *Cat.* 166.17–21.

relations of resemblance, proportion in quantity and number, degree in any quality, and contrariety) contains relations that are internal in the sense of depending entirely on the (ideas of) the relata: a change in either of the relata yields a change in the relation and, as Hume puts it, ‘the relation is invariable, as long as our idea [of the relata] remains the same’ (Hume 1978: book I, part iii, 1). The second class (containing the relations of identity, relations of time and place, and causation) is the class of external relations: in the case of these relations, the relation can vary (or be present or absent) quite independently of any change in (the ideas of) the relata. A consequence inferred by Hume is that it is impossible for *reason*, by acts of intuition or deduction, to establish the existence or non-existence of the causal relation. His assumption is that, with respect to our experience of relations, the simple ideas of which our conscious experience is ultimately composed are simple ideas *of the relata* of the relation. So, in the case of an external relation, such as causation or the separation of two objects by a certain spatial distance – in which the presence or absence of the relation cannot be inferred from our ideas of the relata – there is no intuition or demonstration of the relation itself that can be analysed in terms of simple ideas. Rather, in the case of the causal relation, our faculty of imagination or sensibility gives rise to our experience of (a) the contiguity in space and time of (idea of) cause and of effect, (b) the immediate temporal succession of (idea of) effect after (idea of) cause, and (c) the ‘constant conjunction’ in our experience of (idea of) cause and (idea of) effect.

Hume, of course, has some difficulty in locating what he takes to be an essential constituent of the conception of causation: what he terms the ‘necessary connexion’ between cause and effect. The problem is that, according to Hume, the ‘content’ of the idea of anything that might serve as a cause is entirely distinct from the content of the idea of anything that might be an effect:

there is no object, which implies the existence of any other if we consider these objects in themselves, and never look beyond the ideas which we form of them. Such an inference wou’d amount to knowledge, and wou’d imply the absolute contradiction and impossibility of conceiving of any thing different. But as all distinct ideas are separable, ’tis evident there can be no impossibility of that kind. When we pass from a present impression to the idea of any object, we might possibly have separated the idea from the impression, and have substituted any other idea in its room. (Hume 1978: I, iii, 6)

And, ‘had ideas no more union in the fancy than objects seem to have to the understanding, we cou’d never draw any inference from causes to

effects’ (Hume 1978: I, iii, 6). The propensity of the faculty of ‘fancy’ or imagination – apparently produced from our experience of the ‘constant conjunction’ of the idea of a particular cause and the idea of a particular effect – to pass from the idea or impression of one to the idea of the other grounds Hume’s psychologistic account of the necessary connection between cause and effect. ‘Reason can never satisfy us that the existence of any one object does ever imply that of another; so that when we pass from the impression of one to the idea of belief of another, we are not determin’d by reason, but by custom or a principle of association’ (Hume 1978: I, iii, 7). So, although as a philosophical relation, causation implies contiguity, succession and constant conjunction, ‘tis only so far as it is a *natural* relation, and produces an union among our ideas, that we are able to reason upon it, or draw any inference from it’ (Hume 1978: I, iii, 6).

### Conclusion

I may seem, in my discussion of the analysis of causation in the Way of Ideas tradition of the seventeenth and eighteenth centuries, to have moved far from the ninth book of Sextus’ *Adversus Mathematicos*. From the perspective of his own philosophical programme, Sextus’ *contra* arguments concerning causation are but one piece of his attempt to achieve ἀντίθεσις, ἰσοσθένεια, and ἐποχή (i.e. ‘contrariety’, ‘equal force’ and ‘suspension of judgment’) with respect to the non-evident matter of causation. One significant type of *contra* argument elaborates on the claim that the relation between cause and effect is an external relation or, in Stoic terminology, a relation between τὰ πρὸς τί πως ἔχοντα (‘things that are relatively disposed’). Many arguments of this type proceed to what is, in effect, the conclusion that such a conception of the causal relation leaves no place for the notion of a specifically causal *agency*. This is the δραστήριος δύναμις, the ‘causal efficacy’ or potency that is responsible, *inter alia*, for the anti-symmetry or anisotropy of the causal relation. My motivation in discussing Locke and Hume has been to point out that their strategy, too, was to analyse the causal relation as an external relation, an analysis which is grounded in their idealistic epistemology.

The result has usually been interpreted, both by scholars of classical modern philosophy and by subsequent philosophers, as yielding a conception of causation that is less ambitious and ‘thinner’ than earlier conceptions. Indeed, Barnes (1983) advocates resolving at least some of Sextus’ *contra*-causation argumentation by treating causal claims as the assertion of atemporal relations between two sentences or propositions.



In the formula ' $C(\psi x, \phi y)$ ', ' $C(\dots, \_\_\_)$ ' is, syntactically speaking, a sentential connective; for it has the syntactical function of taking two sentences [signifying events/states of affairs of purported cause and of purported effect] and making a sentence. It leaps to the eye that the word 'because' is a dyadic sentential connective, and that it is causal in nature: why not forget about the verb 'cause', with its misleading suggestions of datable events and read ' $C(\psi x, \phi y)$ ' as: ' $\phi y$  because  $\psi x$ '? (Remember that the general definition of *PH* 3.14 explains 'cause', *aition*, by way of the proposition 'because of', *dia*: the present suggestion, that we replace the verb 'cause' by the connective 'because', has some affinity to that ancient move.) There is no temptation to attach temporal adverbs to the connective 'because', or to think that the sentence 'Aeschylus died because the eagle dropped a tortoise [on his head]' adverts to three events. (Barnes 1983: 185–6)

In other words, if we (or the dogmatists or Sextus) take the 'linguistic turn' with respect to the analysis of our cause-talk, we can rescue causation from the problematic consequences of regarding it as the (meta)physical 'cement of the universe'<sup>14</sup> holding together the events/states of affairs (or, alternatively, the objects and their properties and relations) that constitute that universe. According to Barnes' response to Sextus,

causal relations are not real but rational. The fundamental error in Sextus' main argument against causation is that of treating causing as a datable event, an occurrence in the world. It is a piquant thought that we can refute a sceptical argument against causation by insisting that causation itself is unreal. (Barnes 1983: 186)

Of course, Barnes conceives of his response to Sextus ('causation itself is unreal') not really as eliminating causation *tout court*, but as yielding a more philosophically supportable and less metaphysically robust conception of causation. However, one perhaps might – if one were Sextus – be inclined to read Barnes' conclusion that 'causation itself is unreal' as an admission of the success of at least the *contra* part of Sextus' case.

Similarly, at least according to a minority view, Hume's analysis subverts – in the best sceptical tradition – the very concept of causation, irrespective of what Hume's actual intention might have been.<sup>15</sup> That

<sup>14</sup> The phrase is now particularly associated with the influential monograph on causation by J. L. Mackie (Mackie 1974).

<sup>15</sup> For the development of such a line of thought see Bertrand Russell's 1912 presidential address to the Aristotelian Society, 'On the notion of cause', reprinted in Russell 1981: 132–51. In the essay Russell recommends the 'complete extrusion [of the word "cause"] from the philosophical vocabulary', claiming that the 'law of causality' 'is a relic of a bygone age, surviving, like the monarchy, only because it is erroneously supposed to do no harm' (132). To take the place of the concept of cause, Russell recommends the notion of scientific laws construed as statements of 'functional relations

causation should be analysed as a relation is a fairly obvious philosophical move. Perhaps the most significant contribution of Sextus' discussion of causation is to introduce into Western philosophical discourse the idea that causation is an *external* relation, a relation between τὰ πρὸς τί πως ἔχοντα ('things relatively disposed'). How one makes use of this philosophical move will depend upon one's ultimate philosophical commitments. For Sextus, it grounds one class of *contra* arguments that undermine our confidence in the very existence of the causal relation. For a philosopher such as Locke or Hume – or perhaps Barnes – it leads to a more philosophically adequate and perhaps thinner notion of causation. In the particular cases of Locke and Hume, it grounds a modest empiricist analysis of causation, one that could be presented as performing the worthy service of stripping away obscurantist metaphysical accretions that had been attached to the notion by (scholastic and other) dogmatists. Causation, for the empiricists, becomes an external, dyadic relation between ideas, a relation the presence or absence of which can be established only by experience.

To conclude, it is worth noting that Sextus himself anticipates later anti-metaphysical, empiricist conceptions of causation. In his discussion of 'signs' (σημεῖα) beginning at *PH* 2.100, he rehearses a (Stoic) distinction between signs that are 'suggestive', 'commemorative' or 'recollective' (ὑπομνηστικά) and those that are 'indicative' (ἐνδεικτικά). An indicative sign 'signifies that of which it is the sign by its own particular nature and constitution' (ἀλλ' ἐκ τῆς ἰδίας φύσεως καὶ κατασκευῆς σημαίνει τὸ οὗ ἐστι σημεῖον) (*PH* 2.101). Sextus, of course, claims that Pyrrhonists argue against indicative signs as an invention of the dogmatists (*PH* 2.102). Recollective signs however, are based upon the mental association of one (type of) phenomenon with another, as in the case of smoke and fire (*PH* 2.100). Recollective signs, Sextus says, are utilized in everyday experience or life (ὑπὸ τοῦ βίου). Consequently, 'we not only do not fight against everyday experience, but we support it by undogmatic assent, while opposing the private inventions of the dogmatists'.<sup>16</sup> While it may be the

between certain events at certain times, which we call determinants, and other events at earlier or later times or at the same time' (150–1). Thus, Russell advocates the (external) relation of a mathematical function as a 'black box' (which relates 'input' events-at-times to 'output' events-at-times) as a *replacement* for the causal relation, at least in scientific contexts. The reason why physics 'has ceased to look for causes', he suggests, 'is that, in fact, there are no such things' (132).

<sup>16</sup> ὅθεν οὐ μόνον οὐ μαχόμεθα τῷ βίῳ ἀλλὰ καὶ συναγωνιζόμεθα, τῷ μὲν ὑπ' αὐτοῦ πεπιστευμένῳ ὁδοῦστος συγκρατιθέμενοι, τοῖς δὲ <ὑπὸ> τῶν δογματικῶν ἰδίῳ ἀναπλαττομένοις ἀντιστάμενοι (*PH* 2.102).

case that not all instances of the relation between recollective signs and what they are signs of are plausibly construed as causal relations, it seems that some might be so construed. And in those cases we would seem to have a modest, empirical Pyrrhonian account of the causal relation not unlike that of Locke or Hume.<sup>17</sup>

<sup>17</sup> For more on Pyrrhonian causation, see Spinelli 2005: ch. 4.

## *Appendix: Structural overview of M 9.195–330*

### I. Introduction: *M* 9.195.

195: The concept of a cause has elsewhere been discussed more concisely (*PH* 3.13ff.). In general, we can say that there are (i) those who maintain that there is a cause of what exists, (ii) those who maintain that there is not, and (iii) those who maintain no more that there is than that there is not. Virtually all of the ‘dogmatists’ adopt position (i). The ‘sophists’ adopt position (ii) as a consequence of their denial of change and motion. And the sceptics adopt position (iii) – not ‘without reason’, as can be seen from examining both *pro* and *contra* arguments for the existence of causation.

### II. *Pro* arguments for the existence of causes: *M* 9.196–206.

196: If seed exists, then so does some form of causation. The existence of seed is shown from the generation of plants and animals. Therefore some form of causation exists.

197: If nature exists, then so does some form of causation. The existence of nature is shown by the order manifest in the universe. Therefore, some form of causation exists.

198: If the soul exists, then so does some form of causation. But the existence of soul is demonstrated in the very act of denying its existence. Therefore, some form of causation exists. (An anticipation of the ‘*cogito*’ arguments of Augustine and Descartes?)

199: If god (as governor of the universe) exists, then so does causation. However, if god does not exist, then so does causation (since there is then a cause of god’s not existing). Therefore (by disjunctive syllogism), causation exists. (A classical example of *petitio*.)

200–1: If the Aristotelian kinds of change (generation, destruction, increase, decrease, motion (κίνησις) and absence of motion) exist, then there obviously exist causes of these changes. However, if these changes do not exist, but only appear to exist, there is some cause of their appearing to be existent. Therefore (by another disjunctive syllogism), causation exists. (Another nice *petitio*.)

204–6: If causation exists, then causation exists. But if causation does not exist, then causation exists. Therefore, by disjunctive syllogism,

causation exists. This argument, the soundness of which obviously depends on the counterintuitive second premise, is discussed in the text of this chapter.

### III. *Contra* arguments against the existence of causes: *M* 9.207–57.

#### A. Two summary arguments: *M* 9.207–9.

207–8: Causes are relations or ‘relative things’ (τὰ πρὸς τι). But, as has been shown (*M* 8.453ff.), relations are only conceived and do not exist. Therefore, causes, too, are only conceived and do not exist.

209: A cause must ‘have’ (ἔχειν) that of which it is the cause. But the non-existence of generation, destruction, motion, etc. (which will be demonstrated in due course) entails that a cause cannot have that of which it is a cause. Therefore, no cause exists.

#### B. Arguments against the existence of causes ‘by elimination of cases’: *M* 9.210–57.

210–17: A destructive tetralemma. If cause exists, either (i) the corporeal is the cause of the corporeal, (ii) the incorporeal is the cause of the incorporeal, (iii) the corporeal is the cause of the incorporeal, (iv) or the incorporeal is the cause of the corporeal. None of the four alternatives is possible; hence it is not the case that cause exists. This argument is discussed in the text of this chapter.

217–26: An elaboration of the preceding argument attributed to Aenesidemus.

227–31: Another destructive tetralemma. (i) The moving is not the cause of the moving; (ii) nor is the stationary the cause of the stationary; (iii) nor is the moving the cause of the stationary or (iv) vice versa. The arguments here are very similar to the ones employed above.

232–6: A destructive trilemma. ‘If anything is the cause of anything, then either (i) the simultaneous is the cause of the simultaneous, or (ii) the earlier is the cause of the later, or (iii) the later is the cause of the earlier. Since neither (i) nor (ii) nor (iii) is the case, it follows that nothing is the cause of anything.’ This argument is discussed in more detail in the text of this chapter.

237–45: A dilemma. ‘If there exists some cause, either (i) it is a cause independently and on its own (αὐτοτελῶς) and using only its own power or (ii) it requires, for it to be a cause, the assistance of passive matter, so that the effect is understood to be in accord with the conjunction of both.’ Since neither (i) nor (ii) is the case, it follows that no cause exists. This argument is further discussed in the text.

246–51: Another destructive dilemma. ‘If a cause exists, either (i) it has one efficacious power (τὴν δραστήριον δύναμιν) or (ii) it has many.’ (i) is not the case and neither is (ii); hence no cause exists. This argument is further discussed in the text.

252–7: A very complex, ‘layered’ destructive dilemma. ‘If there exists a cause of something, either (i) it exists as separate from the passive matter or (ii) it exists along with it.’ (i) is not the case. If (ii) were the case, then the one said to be the cause either (a) itself acts only, and is not acted

on, or (b) both acts and, at the same time, is acted on.' If (b), then in so far as the matter acts [on the cause], then [the cause?] itself will be what is acted on. Thus, the absurd consequence would be that which acts is no more active (or less passive) than that which is acted on. So, it is not the case that (b). But, if (a), then either (1) it acts at the surface of what is acted on, or (2) it acts by distribution/permeation throughout what is acted on. (1) cannot be the case. If (2) were the case, then the cause would either (1') 'go through solid bodies' or (2') 'go through certain intelligible but imperceptible pores'. (1') is not the case. But neither is (2') the case, since (2') reduces to or presupposes the possibility of case (1), which has already been eliminated. It follows that (2) is not the case. And it then follows that (a) is not the case. Then, it follows that (ii) is not the case. And since neither (i) nor (ii) is the case, it follows that it is not the case that there exists a cause of anything. The details of the argument are discussed in the text.

- C. Beginning at *M* 9.258, Sextus presents a number of arguments *contra* the existence of causation 'by reduction'. By this characterization, I mean that he 'reduces' the issue of the existence of causes to the issue of the existence of  $\Phi$  or  $\Phi$ s. That is, the existence of  $\Phi/\Phi$ s is taken to be a necessary condition of the existence of causes. So Sextus' arguments against the existence of  $\Phi/\Phi$ s count as arguments against the existence of causes.

258–64: Touching or contact ( $\acute{\alpha}\phi\eta$ ) does not exist. The argument is a destructive tetralemma: contact would have to be either (i) whole to whole, (ii) part to part, (iii) whole to part, or (iv) part to whole; and none of these is possible. The solid core of this argument seems to be that one thing cannot touch another 'whole to whole'. The argument is that such 'contact' would not really be contact but rather the 'fusion into one' or 'union' ( $\xi\nu\omega\sigma\iota\varsigma$ ) of the two wholes. This consequence is obviously taken to be paradoxical, although the nature of the paradoxicality is not elaborated on in the text. It is also reminiscent of Aristotle's arguments for the impossibility of points touching in *Physics* 6.1. Case (ii) is reduced to this case (i). It seems that cases (iii) and (iv) could be similarly reduced. However, Sextus seems to appeal to a rather crude paralogism to eliminate the possibility of these cases. One naturally reads, e.g., 'whole touches part' as 'whole of A touches part of B'. But Sextus' arguments seem to assume that being equal to a proper part of A implies being equal to a proper part of B and that being equal to the whole of A implies being equal to the whole of B. He then has no problem deriving an absurd consequence. 'If the whole touches the part, it will be smaller than itself, and again larger than itself . . . For if the whole occupies the same space as the part, it will be equal to the part, and being equal thereto it will be smaller than itself; and conversely, if the part is extended so as to match the whole, it will take up the same space as it, and as occupying the same space as the whole it

will be larger than itself.' Of course, this all follows if one assumes the equality of A and B from the start. But Sextus adduces no arguments for this assumption.

- 265–6: Another rather obscure argument (a dilemma) that A cannot touch B: when A supposedly touches B, it either does so (i) by the instrumentality of τὸ μεσολαβούμενον (what intervenes between?) or (ii) with nothing intervening between. If the former, A touches (and B is touched) by what intervenes and it is not the case that A touches B (B is touched by A); rather, the touching and being touched occurs with respect to what intervenes. If the latter, contact (θίξις) does not occur, but, rather, union (ἔνωσις).
- 267–76: First argument that nothing is affected or acted on (πάσχει). Something is affected (i) by ceasing to exist or (ii) by losing or gaining some property Φ. But (i) cannot be the case. If something A ceases to exist, then it ceases to exist (a) when it exists or (b) when it does not exist. If (a) were the case, A would exist and not exist at the same, which is absurd. And if (b) were the case, something non-existent would *become* non-existent, which is equally absurd. For example, Socrates 'does not die again when he is dead, since then he will die twice, which is absurd'. Analogously, (ii) cannot be the case. If A acquires (loses) property Φ when it is not-Φ (Φ, respectively), it is both the case that (a) opposites exist at the same time in the same thing and (b) something (namely A) will become not-Φ (Φ) before it has become not-Φ (Φ, respectively) – both of which consequences are absurd. Sextus does not explicitly and with full generality address the other horn of the dilemma for qualitative affection: that of something's acquiring (losing) property Φ when it already is Φ (is not-Φ, respectively). But he does say, with respect to perishing or destruction, that something cannot cease to exist when it no longer exists – since what does not exist does not have any properties at all. But, one might add, on his behalf, that it makes no sense to speak of something A losing (gaining) a property Φ, when it is already not-Φ (Φ, respectively).

It is perhaps not surprising, in view of Sextus' aims, that he makes no attempt to use a constructive account of change, such as that found in Aristotle's *Physics*, in order to attempt to resolve these puzzles.

- 277–329: A very extended argument that nothing is affected. In outline, the argument is a destructive tetralemma. If something is affected, it is affected either (i) by addition (πρόσθεσις), (ii) by subtraction (ἀφαίρεσις), (iii) by alteration (ἐτεροίωσις), or (iv) by change (μεταβολή). But none of (i) through (iv) is the case. Therefore, nothing is affected. (Hence, there is no causation.)

The bulk of the text is devoted to arguments against premise (ii) – that is, arguments that subtraction does not occur. The first of these arguments (280–97) is another destructive tetralemma. If something is subtracted from something else, then either (a) the corporeal is subtracted from the

corporeal, or (b) the incorporeal is subtracted from the incorporeal, or (c) the corporeal is subtracted from the incorporeal, or (d) the incorporeal is subtracted from the corporeal. But none of these is possible. Sextus first undertakes to show the impossibility of (b) – of an incorporeal's being subtracted from an incorporeal. His fundamental argument is scarcely more than an assertion: 'the incorporeal, being intangible, does not admit in itself of subtraction and being separated'. Sextus' initial picture of subtraction seems to be a very 'physical' one, namely that of separating off or taking away. Consequently, there follow (up through section 294) arguments that various geometrical operations such as bisection are impossible. Alternatives (c) and (d) are briefly considered and rejected at 295–6: (c), the subtraction of the corporeal from the incorporeal, is self-evidently impossible. But (d), the subtraction of the incorporeal from the incorporeal, is also impossible. For – so claims Sextus – the subtrahend must touch the minuend, but the incorporeal is intangible. 'Moreover, what is separated must be a part of that from which it is separated, but the incorporeal could not be a part of the corporeal.'

At 297, Sextus begins his attempt to show that the corporeal cannot be subtracted from the corporeal. He argues that it is not possible (1) for the equal to be subtracted from the equal or (2) for the unequal to be subtracted from the unequal. And, of course, he assumes that these two possibilities are exhaustive. He gives two arguments for the impossibility of (1). The first is that this would not be subtraction but, rather, the complete destruction of the minuend. The second is a classical eristic argument: the subtraction of equal from equal must occur either (1') from the minuend while it remains or (2') from the minuend when it does not remain. But the former (1') would result not in subtraction from but in doubling the minuend; while, in the case of the latter (2'), 'we leave nothing to undergo subtraction, for it is impossible to subtract anything from what does not exist'. So, the only alternative remaining is that the unequal is subtracted from the unequal, which entails that either (1'') the greater is subtracted from the less or (2'') the less is subtracted from the greater. It is obvious that (1'') is not possible, 'for it is necessary that the subtrahend is included in that from which there is subtraction'. The argument against (2'') is also a marvellous eristic paralogism, which I discuss in the text of this chapter.

What is presented as a new argument against the possibility of subtraction begins at 308: 'If something is subtracted from something, either (1) whole is subtracted from whole, or (2) part is subtracted from part, or (3) part is subtracted from whole, or (4) whole is subtracted from part.' Alternatives (1) and (4) are quickly dismissed, by arguments that Sextus has previously employed. (2) and (3) remain. Sextus first sets to work on the plausible alternative (3), using eristic arithmetic arguments. Take, e.g., a decade and suppose that one has subtracted a monad. It is implausible, he argues, that the decade is anything beyond (*παρα*) the individual monads that are its parts. But, he argues, in that case, the subtraction of



the monad is a subtraction of a monad from *each* of the 'constituent' monads. Otherwise, apparently, the subtraction would not be *from the decade*, which Sextus is identifying with (*each of*) its constituent monads. So, paradoxically, nothing remains! He proceeds to argue that it does not make sense to think that the subtraction occurs, either, from the 'remaining nine monads'. And he concludes (318–19) with an argument trope, instances of which we have previously encountered, to the effect that the subtraction of a monad cannot occur either from the decade while it still remains (as a decade) or from the decade when it does not remain.

Recollect that Sextus has been arguing, for a considerable number of lines, that 'affection' – something's being affected or acted upon – cannot take place through subtraction. He must still argue that it cannot take place through addition, nor through alteration and change. These arguments are comparatively quite brief. The sections (321–7) arguing against affection's occurring through addition uses arguments analogous to those he uses against its occurring through subtraction, although they are more compactly presented. Included among these is another version of a now familiar argument trope: what is added to an addendum is added to the addendum neither when that addendum exists-as-not-yet-added- to nor when it exists-as-already-added-to. Hence, the addendum is never added to.

Finally, there is an even briefer section (328–9) in which Sextus reduces the alternative of something's being affected or acted upon through transposition (μετατίθεσθαι) to its being affected through some combination of addition and subtraction, which he has already argued to be impossible. The rather cavalier equation of affection by alteration and change (κατὰ ἑτεροίωσιν καὶ μεταβολήν) with affection by transposition has been anticipated earlier at 279.

#### IV. Conclusion: *M* 9.330.

- 330: This section introduces the following discussion of the concepts of part and whole by noting that if doubt or *aporia* could be raised against the coherence of these concepts, that consequence would add to the problematic character of the concepts of addition and subtraction and, consequently, increase doubt concerning the passive and the active (and causation).

*Wholes and parts: M 9.331–358**Katerina Ierodiakonou***Introduction**

The section of the first book of Sextus Empiricus' *Against the Physicists* which is devoted to the discussion about wholes and parts is the shortest section in this book but deals with an easily recognizable philosophical topic: is a whole just the sum of its parts or is it something more than that? This particular section is the focus of Jonathan Barnes' article 'Bits and pieces' (1988), an article which, as he himself notes, constitutes the heavily revised version of the paper he gave back in 1986 at the Fourth Symposium Hellenisticum in Pontignano. Barnes traces in a thorough way the Presocratic and Platonic inheritance that forms the background to these paragraphs of Sextus' work. He also studies the structure of Sextus' text, comments on its main textual problems and reconstructs its central arguments. Moreover, he analyses in detail the logical puzzles and paradoxes which arise from the whole–parts relation, and which Sextus uses in order to induce a state of perplexity in his readers; these logical puzzles and paradoxes are still, as Barnes argues, a source of reflection for contemporary philosophers.

So, is there anything that remains to be said about this section on wholes and parts? In what follows, I want to focus on some aspects of the whole–parts relation, as it is presented in Sextus' work, that in my view have not been given sufficient attention. In particular, I want to investigate more closely the notion of *summnēmoneusis* (συνμνημόνευσις) or co-recollection,<sup>1</sup> with the aim of shedding light on certain neglected doctrines of the Hellenistic philosophers, to whom Sextus principally

I would like to thank Keimpe Algra, Charles Brittain, and especially David Sedley for their extremely helpful comments and interpretative suggestions on an earlier draft of this chapter. I only wish Michael could read and comment on this improved version of it, too.

<sup>1</sup> Different translations have been suggested for the term 'συνμνημόνευσις': Bury 1936 translates it in the different sections of *Against the Mathematicians* as 'consciousness', 'concurrent recollection', 'joint recollection'; Barnes 1988 renders it as 'co-remembering'; Mates 1996 uses 'simultaneous awareness'; Bett 2005 'simultaneous recollection'; and Blank 1998 'concurrent memory'. 'Co-recollection' is

seems to address his sceptical arguments. But before undertaking this task, let me briefly outline the structure of this section, as I understand it, and also introduce some additional passages in which Sextus raises the same issue.

### ***M* 9.331–58: The structure of the argument and some comments**

Section *M* 9.331–58 can be divided into two parts:

- (i) §331–8: Previous disputes over the definition of wholes and parts.
  - (ii) §338–58: Questioning the existence of wholes and parts.
- (i) §331–8: Previous disputes over the definition of wholes and parts.

Paragraphs 331–8 are clearly marked by Sextus as the first part of this section, which gives a summary account of the views expressed by previous philosophers, first on what a whole is (ὅλον), and then on what a part is (μέρος). Sextus' aim is to show that the dogmatic natural philosophers were not successful in their attempts to define these notions.

§331: The preceding section on addition and subtraction ends, in paragraph 330, with the remark that the topic of wholes and parts needs to be raised in what immediately follows, since it is closely connected to this issue; for when we talk of subtraction, we mean the subtraction of a part from a whole, and when we talk of addition, we mean the addition of a whole, that is to say the addition of parts so that a whole is formed. Thus, if the notions of a whole and of a part are shown to be problematic, then the notions of subtraction and of addition can also be questioned, and subsequently the notions of the passive and of the active. Nevertheless, when Sextus starts the section on wholes and parts, he gives two further reasons why anyone should broach this topic at all: the physicists themselves need to become clear about these basic concepts they are using, and the sceptics need to expose the rashness of the dogmatic physicists. Hence, Sextus takes it upon himself to show first how difficult it is to decide on an adequate definition of wholes and parts.

§332–4: In paragraphs 332–4 Sextus presents the different views developed by the Stoics, the Epicureans and the Peripatetics on what a whole is, by juxtaposing their notion of the whole to that of the total (πᾶν): the Stoics distinguished between the whole and the total, the whole being the finite world while the total being the finite world together with

admittedly not a particularly elegant rendering, but it is designed to stay close to the form and meaning of the ancient Greek term.

the infinite void surrounding it (§332). The Epicureans talked indiscriminately of the whole and the total, when they referred to all physical bodies together with the void (§333). The Peripatetics also talked indiscriminately of the whole and the total, but they limited their use only to physical bodies, since they did not believe in the existence of the void (§334).

§335–7: Paragraphs 335–7 are devoted to what Sextus calls ‘a small dispute’ (διάστασις βραχεῖα) among the Epicureans, the Stoics and Aenesidemus about what a part is: the Epicureans claimed that a part differs from a whole just as an atom differs from a body, which is a compound of atoms and void; for an atom has no qualities whereas a compound body does (§335). The Stoics defended the view that a part is neither the same as nor other than a whole; for instance, a hand is neither the same as the man whose hand it is, for it is not a man, nor other than the man whose hand it is, since it is included in the conception of a man as a man (§336). Aenesidemus<sup>2</sup> stated that a part is both other than and the same as a whole; for substance is both whole when it is said of the universe, but also part when it is said of a particular animal (§337). Finally, at the end of paragraph 337, Sextus talks of the ambiguity which characterizes the term ‘particle’ (μόριον). That is to say, he distinguishes between (a) the strict sense of ‘particle’ which refers to a part of a part, for instance to a finger as part of a hand which is part of a man; and (b) the wider sense in which ‘particle’ is ‘what fills out the whole’ (τὸ συμπληρωτικὸν τοῦ ὅλου), that is, in which it is simply a synonym of ‘part’ (cf. *PH* 3.100).

§338: In the final sentence of this first part of the section on wholes and parts, at the beginning of paragraph 338, Sextus explicitly says that the

<sup>2</sup> To be more precise, Sextus identifies the proponent of the view as ‘ὁ Αἰνισίδημος κατὰ Ἡράκλειτον’. This puzzling phrase, which can also be found elsewhere in Sextus’ works (*M* 7.349; 10.216; cf. *M* 8.8), raises the issue of the relation between Aenesidemus and Heraclitus and has been understood in different ways by modern scholars (e.g. Barnes 1998: 261, n. 75; Bett 2000: 223–32; Polito 2004; Schofield 2007; Hankinson 2010: 115–17): they all agree that it cannot mean ‘Aenesidemus, according to Heraclitus’, but they disagree as to whether it means ‘Aenesidemus following Heraclitus’, or ‘Aenesidemus in agreement with Heraclitus’, or whether it should be taken as a compressed form of ‘Aenesidemus says that, according to Heraclitus’, or even ‘Aenesidemus, in his work *Heraclitus*’. I do not want to enter this debate, here, but I would like to point out that (a) the view discussed in this passage is nowhere attributed to Heraclitus, and (b) Sextus in this passage seems to focus on views expressed only by Hellenistic philosophers. Moreover, all scholars have taken for granted that the Heraclitus of this phrase is the Presocratic philosopher and have not even considered the possibility that it refers to Heraclitus of Tyre, the pupil of Philo and friend of Antiochus, mentioned by Cicero (*Acad.* 2.11–12). Since we know next to nothing about this Heraclitus, there are difficulties with this suggestion, too, but given the awkwardness of the phrase, it is worth exploring. (I owe this suggestion to Paul Kalligas.)

survey of the previous philosophical views is over and it is time for the sceptical inquiry itself to begin.<sup>3</sup>

(ii) §338–58: Questioning the existence of wholes and parts.

The second and longer part of this section constitutes the sceptical investigation. However, what Sextus actually does here is not to produce counter-arguments for every single doctrine about wholes and parts advocated by the dogmatists. Rather, Sextus' efforts are clearly directed towards the refutation of the thesis that wholes and parts exist, and more specifically that wholes are filled out by parts.<sup>4</sup> Thus, by offering a range of counter-arguments against a central and common tenet of the dogmatists, Sextus manages to call it into doubt by reaching an implicit equipollence between his own arguments and what the previous philosophers had to say about wholes and parts. This second part can be divided into four subparts: §338–44, §345–9, §350–1 and §352–8.

§338–44: Paragraphs 338–49 include the arguments which are meant to show that wholes do not exist; having shown this, Sextus claims, we can immediately infer that their correlatives, namely their parts, do not exist either. More specifically, after first phrasing in paragraph 338 the question on the basis of which Sextus structures his sceptical argumentation, namely

<sup>3</sup> Heintz 1932: 223–4 claims that we should excise quite a substantial part of what we read in the manuscripts of *M* 9.338:

προδηρθρωμένων δὲ τούτων, [καὶ τοῦ ὅλου κατὰ τὴν ἐκ τῶν μερῶν συμπλήρωσιν νοομένου,] χωρῶμεν λοιπὸν ἐπὶ τὴν σκέψιν.

And now that these things have been antecedently articulated, [and the whole is being thought of as being filled out by the parts,] let us next proceed to our investigation.

He argues that this must have been a gloss later added to the text, since it gives a definition of the whole that is similar to the definition of the part in the sentence immediately preceding as being what fills out the whole. According to Heintz, it is not reasonable for Sextus here to adopt as the starting point of his investigation a conception of the whole that he intends to question in the following paragraphs, namely as being the sum of its parts. I, for my part, do not think that there is any reason for this excision. First, because referring to the whole as 'being filled out by the parts' does not necessarily imply that the whole should be thought of as being nothing other than its parts. (I owe this remark to David Sedley.) And second, the section on wholes and parts begins, as I have already indicated, with a presentation of the physicists' views on what a whole and a part is; when this first part is over, Sextus points out that in what follows he intends to undertake the task of examining these views which deal with the whole precisely in so far as it is conceived of as being filled out by the parts. This is, I think, the reason why he adds the phrase that Heintz excises, a phrase which does not commit Sextus himself to any view about what a whole is, but which formulates his very target and organizing concept in what follows. So the phrase excised by Heintz is not just defensible, but actually indispensable.

<sup>4</sup> Sextus' method of inquiry here complies, I think, with the methodological principle which he puts forward at the beginning of this book (*M* 9.1–3), namely, that it is more effective to undermine the most fundamental views of the dogmatists than to try to rebut every single one of their particular theories.

that if a whole exists it is either other than its parts or the sum of its parts, in paragraphs 339–40 he shows that a whole is nothing other than its parts, while in paragraphs 341–4 he shows that it is not the sum of all of its parts, nor the sum of some of its parts, nor identical to one of its parts.

§339–40: Sextus argues against the thesis that a whole is other than its parts on the basis (a) of the evidence of our senses (κατ' ἐνόργειαν), and (b) of how we conceive of it (κατὰ νόησιν). It is clear, Sextus argues, that if all parts of a whole are destroyed, or even if just one of its parts is destroyed, the whole is destroyed, too; for instance, we observe that if a part, or for that matter all parts of a statue are destroyed, there is no longer a statue. Moreover, a whole is nothing other than its parts, since we conceive of it as that from which no part is missing, but also as relative to its parts, assuming that correlatives must coexist and be inseparable from each other.

§341–4: Next, Sextus argues against the thesis that a whole is the sum of its parts, or the sum of some of its parts, or identical to one of its parts. It is not identical to one of its parts, since it is obvious that the head, or the neck or the hand of a man are not each identical to the whole man (§341). Also, a whole is not the sum of some of its parts for two reasons: first, because the rest would not then be parts of the whole, which is absurd; and second, because a whole is conceived of as that from which no part is missing (§342). Also, a whole is not the sum of all its parts, for in that case the whole would not be something over and above its parts, just as a fist is nothing but a hand clenched, or separation is nothing but things separated; and the parts would no longer be parts of a whole either (§343). Finally, if wholes do not exist, parts, too, as the correlatives of wholes, do not exist either; for just as the right does not exist if the left does not exist, and the above does not exist if the below does not exist, parts, too, do not exist, if wholes do not exist (§344).

§345–9: But although the main argument may be said to have finished here, there is a further issue that Sextus wants to raise: thus far he has been discussing the relation between wholes and parts in so far as wholes are conceived of as being filled out by parts, in a rather general sense; here he zooms in on what it actually means to say that parts 'fill out' or even 'completely fill out' (συμπληρωτικά) the whole. If we grant that a whole is its parts, do the parts fill out the whole, do they fill out one another or do they fill out themselves? They cannot be said to fill out the whole, because they are the whole; they cannot be said to fill out one another, because they are not parts of one another, just as the different parts of a man, for example his left and his right hand, are not parts of one another but subsist separately; and finally, it would be absurd to say

that they fill out themselves, because they are not parts of themselves. Therefore, wholes do not exist, if a whole is nothing other than its parts nor the sum of its parts (§345–7). At this point Sextus adds as an appendix another possible objection that is relevant to his subject: since a part such as the head fills out a man, that is a whole, being a part of him, and since a man is conceived of as a man with a head, the head can be said to fill out itself and be a part of itself; in this way, the head is said to be greater than itself, since it is filled out by itself, and lesser than itself, since it fills out itself (§348). And the same applies in all other cases of parts filling out wholes, for instance of a palm being a part of the cubit (§349). So, the notion of ‘filling out’ cannot be used in a coherent way, and Sextus dismisses all these cases as absurd and contrary to our common notions.

§350–1: Paragraphs 350–1 deal with the parallel case of a sentence and its parts, or more specifically the case of the first line from the *Iliad* and the individual words in it. Sextus devotes more space to the investigation of this same example in his treatise *Against the Grammarians* 1.131–41. The difficulties here, according to Sextus, arise when we ask of what exactly a particular word in this line can be said to be a part. For if it is a part of the whole line, then it is also a part of itself, since the line is conceived of as including it; and if it is a part of the rest of the line, then it turns out to be a part of something in which it is not included, which sounds absurd.

§352–8: Paragraphs 352–8 present Sextus’ dismissal of an alleged attempt by the dogmatists to rebut the sceptical arguments concerning the non-existence of wholes and parts. According to Sextus, some unnamed dogmatists, in response to the difficulties raised concerning the existence of wholes and parts, used to argue that the external perceptible objects are not themselves wholes or parts but that it is we who apply to them these terms (§352). The ‘whole’ and the ‘part’ are both relative terms, because the ‘whole’ is conceived of in relation to the ‘part’ and the ‘part’ is conceived of in relation to the ‘whole’; relative terms are in our *summnēmoneusis*, that is, in our co-recollection; therefore, the ‘whole’ and the ‘part’ are in our co-recollection, and it is our co-recollection that predicates these terms of the external perceptible objects (§353). Sextus immediately offers a reply to this: it is absurd to argue that the head or the neck are not parts of the external man but reside in our co-recollection; for if the head and the neck are in us, the whole man should also be in us (§354). But perhaps someone further argues that the whole man is in fact in us, and his parts are not the external head or the external neck but our own conceptions of these (ἐννοιαί); for the whole man is itself a concept of ours (ἐννόημα) (§355). To this Sextus replies that it does not manage to settle the

issue, since even if the whole man is a concept of ours or in our co-recollection, we may still ask whether he is other than his parts or the sum of his parts; but it has been shown that neither of these holds (§356). No whole exists, therefore, and consequently no part exists, since these are correlatives (§357). So, now that the efficient principles have been dealt with, Sextus states that it is time to investigate the material ones (§358).

### **M 9.331–58 and related texts**

M 9.331–58 is not the only text in which Sextus is concerned with wholes and parts in his work *Against the Mathematicians*. I have already mentioned the passage in the *Against the Grammarians* (M 1.131–41), which focuses on the relation between sentences and their parts. In addition, Sextus talks more generally about the whole–parts relation in his *Outlines of Pyrrhonism* and devotes two sections to it, one in the second book (PH 2.215–18) and one in the third book (PH 3.98–101). Both of these sections are much shorter than our section, but it is worth noting the similarities and differences between them. In PH 2.215–18 Sextus discusses logical doctrines and argues against the possibility of dividing a whole into parts, a topic with which he does not deal at all in M 9.331–58. On the other hand, PH 3.98–101 treats wholes and parts from the same perspective of natural philosophy as in our section, though in a less detailed manner and without mentioning the views of previous philosophers.

In particular, in the first two paragraphs of this small section (PH 3.98–101), just as in M 9.331–58, Sextus connects the discussion on wholes and parts with the investigation about addition and subtraction. He aims here, too, to show that wholes and parts do not exist, and he starts by claiming that wholes do not exist, if they are to be understood either as something other than their parts or as the parts themselves. He even uses the same argument in favour of the view that a whole is nothing other than its parts; if the parts of a whole are destroyed, the whole is also destroyed. Finally, in order to show that the whole does not exist if the parts are the whole, he uses one of the examples in M 9.343, namely that separation is nothing other than the things separated. Now, in the last two paragraphs of this section (PH 3.100–1) Sextus claims that parts, too, do not exist, if they are to be understood either as parts of a whole or of one another or each of itself. He claims that parts do not exist as parts of a whole, since a whole is nothing other than its parts; they do not exist as parts of one another, since a part cannot be included in that of which it is a part; they do not exist each of itself, since something cannot be both greater and less



than itself. That is to say, Sextus uses here the same arguments as in *M* 9.345–9. But, I think, there is a difference: Sextus' line of reasoning in the *Outlines of Pyrrhonism* is presented in a much clearer way than that in *Against the Physicists*, where the added material confuses at points the overall structure of his argument. Is it because the section in the *Outlines of Pyrrhonism* was written after that in *Against the Physicists*, or is it simply because of its short length irrespective of its time of composition? This question touches upon the more general issue of the connection between the two treatises, an issue that of course cannot be settled just on the basis of the sections on wholes and parts.

Wholes and parts are mentioned fleetingly in other passages both of Sextus' *Outlines of Pyrrhonism* and of his *Against the Mathematicians* (cf. *PH* 3.45–6, 85–96; *M* 1.162–8; 3.35–6; 4.24–33; 9.258–64, 308–19). Some of these passages focus on different topics from those in *M* 9.331–58, some on similar ones. In what follows I refer to and make use of those relating more closely to Sextus' treatment of wholes and parts in our section.

### Wholes and parts as correlatives

Let us next study in more detail Sextus' discussion about wholes and parts in *M* 9.331–58. Given what we already know from other ancient sources, the first part in which Sextus presents the Hellenistic philosophers' views does not contain many surprises (*M* 9.331–8). Brief though they may be, the accounts which Sextus lists cannot be thought of as misrepresenting what the Hellenistic philosophers actually had to say on this topic, even if at times it takes some work to fully reconstruct the relevant doctrines and unravel their implications.<sup>5</sup> But there is still sufficient reason for being cautious about Sextus' report; for it seems that, although he may have had reliable evidence for the opinions he attributes to these philosophers, he chooses to place them in a context, namely that of the topic of wholes and parts, which most probably was not their original one and may have not reflected accurately the intentions of their proponents. For instance, in paragraphs 332–4 the doctrines presented seem to be only marginally relevant to the topic of wholes and parts; for their proponents, namely the Stoics, the Epicureans and the Peripatetics, were interested in identifying the items that constituted the basic wholes and parts in their cosmology,

<sup>5</sup> For a plausible reconstruction, in particular, of the rather puzzling positions on the whole–parts relation by the Stoics and by Aenesidemus, see Barnes 1988: 259–68.

rather than in settling logical and metaphysical questions about the notion of a whole and of a part.

More intriguing is what we find in the second part with respect to Sextus' dialectical arguments in favour of the thesis that wholes and parts do not exist (*M* 9.338–58). First, as I have said, Sextus argues against the thesis that a whole is other than its parts. To this end, he uses two different kinds of arguments, namely arguments based on the evidence of the senses (*κατ' ἐνόργειαν*) and arguments based on how we conceive of the notions of a whole and of a part (*κατὰ νόησιν*). More specifically, he gives two arguments based on the evidence of the senses: we observe that when all the parts of a whole are destroyed, for instance of a statue, the whole does not exist any longer; also, we observe that even when just one part of a whole is destroyed, again the whole does not exist any longer, at least not as a whole. Sextus, then, continues with two arguments based on how we conceive of the notions of a whole and of a part: according to the first argument, a whole is conceived of as that from which no part is missing; if a part of a whole is missing, the whole does not exist. Now the second argument adds to Sextus' discussion about wholes and parts something which plays a significant role in this section, namely the idea that wholes are relatives (*πρὸς τι*), because they are always conceived of in relation to their parts, and the same holds also for parts. Let me quote this argument in full (*M* 9.340):

And again, the whole is a relative; for it is conceived of as a whole in relation to the parts, and just as the part is a part of something, so also the whole is a whole made up of certain parts. But the relatives must coexist with each other and be inseparable from each other. Therefore, the whole is not other than its parts nor separate from them.

This is the first occasion on which Sextus talks about wholes and parts as correlatives; if a whole exists, its correlative, namely its parts, also exists, and the other way round.

The same idea features some paragraphs later, though this time Sextus does not explicitly state that wholes and parts are correlatives. This second passage comes at the end of the series of arguments that are meant to defuse both the claim that the whole is other than the parts and the claim that the whole is the sum of the parts. So, Sextus here concludes that wholes do not exist, and the same applies in the case of parts (*M* 9.344):

And again, just as, when 'right' does not exist, 'left' also is non-existent, and when 'above' is not conceived of neither is 'below' conceived of, in the same way, if the whole does not exist, the parts are not conceived of as parts, nor will any parts exist.

The examples used in this passage are indicative; the example of 'left' and 'right', which we also find in the parallel passage from the *Against the Grammarians* (*M* 1.136), as well as the example of 'above' and 'below' are standard examples of correlatives that coexist and cannot be conceived of separately from each other. In the same way, Sextus claims, if wholes do not exist, then their parts cannot exist nor be conceived of as parts.

The third occasion in which Sextus makes use of the fact that wholes and parts are correlatives is in the very last paragraphs of our section, in which he tries to dismiss the dogmatists' attempt to deal with the sceptical arguments against the existence of wholes and parts. According to Sextus, some unnamed dogmatists, faced with certain puzzles about wholes and parts, claimed that the external perceptible objects are neither wholes nor parts; rather, it is we who predicate the terms 'whole' and 'part' of them. For the terms 'whole' and 'part' are conceived of only in relation to each other and thus are correlatives; and since relatives are only in our co-recollection (*συμνημόνευσις*), and our co-recollection is in us, wholes and parts are only in us (*M* 9.353):

For the whole was a relative; for it is in relation to its parts that it was conceived of as whole. And again, parts are relatives; for it is in relation to the whole that they are conceived of as parts. But relatives are in our co-recollection and our co-recollection is in us. Hence the whole and the part are in us. External perceptible objects are neither wholes nor parts, but things of which we predicate our own co-recollection.

To the dogmatists' position Sextus raises, as I have said before, the following objection: it would be absurd to claim that the parts of a man, for instance his head or his neck, are only in our co-recollection; then, the whole man would also be only in our co-recollection, which is absurd. To this objection, however, the dogmatists could still have been able to give a reply, as Sextus himself confesses; for they could have argued that both the whole man and his parts, such as his head and his neck, are mere concepts (*M* 9.354–5):

In reply to them one must say, firstly, that it is absurd to claim that the neck or the head are not parts which fill out the external man but of our own co-recollection. But if the head and the neck fill out the man and the neck is in us, the man will have to be in us, which is absurd. Hence the whole and the parts do not reside in our co-recollection. Yes, someone will say, but the whole man is in us by way of co-recollection and is filled out not by the external neck and the external head, but again by the conceptions (*ἐννοιαί*) which correspond to these parts. For in fact the whole man himself is a concept (*ἐννόημα*) of ours.

Still, Sextus insists, even if the whole man and his parts were mere concepts, the difficulty concerning the whole–parts relation would remain; for we would still need to address the question whether or not our conception of the whole is other than our conception of its parts. Therefore, Sextus suggests that it could also be shown, following again the same reasoning, that the concept of a whole does not exist; and since the concept of a whole and that of its parts are correlatives, the concept of its parts does not exist either.

These are the three occasions in our relatively short section from the *Against the Physicists* in which Sextus talks about wholes and parts as being correlatives. In fact, the view that wholes and parts should be understood as correlatives is never questioned by Sextus, although this is clearly a view expounded by the dogmatists. Similarly, in the relevant section of his *Outlines of Pyrrhonism* (3.98–101), Sextus treats wholes and parts as correlatives: after presenting a compressed form of some of the arguments which we find in our section and which aim at proving that wholes and parts do not exist, Sextus ends by saying that a whole and its parts are destroyed together, since they are correlatives (*PH* 3.101):<sup>6</sup>

If, then, the so-called parts are parts neither of the whole nor of themselves nor of one another, they are not parts of anything. But if they are not parts of anything, they are not parts; for correlatives are destroyed together.

But when Sextus talks of wholes and parts as correlatives, does he think of any specific ancient philosopher?

Treating wholes and parts as correlatives could be said to have a long tradition. To start with Plato, he did not call parts ‘relatives’ (πρός τι) when he defined them as parts of wholes (e.g. *Tht.* 204a7–205a10; *Prm.* 137c6, 142d6–8, 144e8, 157c4–5) and did not include wholes and parts in the semi-technical passages in which he gave examples of pairs of correlatives (*Prm.* 133c–134d; *Smp.* 199cd); on the other hand, he spoke of them in relation to each other and he may have thought of them as interdefinable. Aristotle, too, did not explicitly talk of wholes and parts as correlatives, but when in the seventh chapter of his *Categories* he wanted to illustrate his formal account of relatives, he used examples of wholes and parts; for instance, he talked of a head being called someone’s head and of a hand being called someone’s hand as relatives (*Cat.* 8a26–8).

<sup>6</sup> εἰ οὖν μήτε τοῦ ὅλου μήτε ἑαυτῶν μήτε ἀλλήλων μέρη ἐστὶ τὰ λεγόμενα εἶναι μέρη, οὐδενός ἐστι μέρη. εἰ δὲ μηδενός ἐστι μέρη, οὐδὲ ἔστι μέρη· τὰ γὰρ πρὸς τι ἀλλήλοις συναναίρεται.

I very much doubt that Plato and Aristotle are the unnamed dogmatists to whom Sextus refers in *M* 9.352. Besides, when in the first part of our section he presents the different views on wholes and parts defended by previous dogmatic philosophers, he limits his survey to the philosophers of the main Hellenistic schools, the Epicureans and the Stoics. Hence, I think that one should search among these schools in order to identify the dogmatists whose theories he primarily addresses when in the second part he constructs his dialectical arguments against the view that wholes and parts exist. Indeed, the last paragraphs of Sextus' text are, I think, quite helpful in revealing the identity of his main interlocutors here. I refer especially to Sextus' dialectical exchange with the dogmatists who allegedly claimed that wholes and parts are only in our co-recollection, and are therefore mere concepts. But what does it mean precisely that wholes and parts, and in general all relatives, are only in our co-recollection? Also, who are the dogmatists who may have advocated such a theory?

### ***Summnēmoneusis*: the evidence and its function**

To better understand what Sextus means in the last paragraphs of the section on wholes and parts when he talks of our co-recollection, we should study first the few other passages in which he uses the term '*summnēmoneusis*'. In fact, although Sextus uses this term seven times in our section, there are only five other occurrences of the term in the rest of his works:

1. In the second book of the *Against the Physicists*, in the section on motion,<sup>7</sup> Sextus claims that, according to some dogmatists, motion is a concept which we do not acquire simply by our senses, but by reason through the senses, and in particular by way of co-recollection (κατὰ συμμηνημόνευσιν) (*M* 10.64):<sup>8</sup>

But those who maintain that it is not grasped by sense, but by reason through sense, say that every motion comes about by way of co-recollection; for by recalling that this particular body was formerly in that particular place but now is in this, we grasp the conception of motion and of having moved. But memory itself is the work not of any irrational sense but of a power of reason. It follows, therefore, that motion is not grasped by sense but by reason.

<sup>7</sup> Cf. Hankinson, in this volume, pp. 227–8.

<sup>8</sup> οἱ δὲ ἀξιοῦντες μὴ αἰσθῆσαι ταύτην λαμβάνεσθαι, ἀλλὰ δι' αἰσθήσεως μὲν διανοίᾳ δέ, φασὶν ὅτι πᾶσα κίνησις κατὰ συμμηνημόνευσιν γίνεται· ἀναφέροντες γὰρ ὡς τότε τὸ σῶμα πάλαι μὲν <ἐν> τῷδε τῷ τόπῳ ἐτύγγανε, νῦν δὲ ἔστιν ἐν τῷδε, ἔννοιαν λαμβάνομεν τῆς κινήσεως καὶ τοῦ κεινῆσθαι. αὐτὸ δὲ τὸ γε μνημονεύειν οὐκ ἀλόγου τινὸς αἰσθήσεως, λογικῆς δὲ δυνάμεώς ἐστιν ἔργον. οὐκ ἄρα τῇ αἰσθήσει, διανοίᾳ δὲ συμβέβηκε λαμβάνεσθαι τὴν κίνησιν.

In other words, Sextus claims here that in observing a body which currently occupies a certain place, we remember that this particular body occupied in the past a different place, and thus we form the concept of motion.

2. Again, in the second book of the *Against the Physicists*, and in particular in the section on time,<sup>9</sup> Sextus paraphrases Aristotle's doctrine that time has passed when we have a perception of the before and after in motion (*Ph.* 4.11.219a22–b2), by stating that time is some kind of co-recollection (συμνημόνευσις τις) of the first and later in motion (*M* 10.176):<sup>10</sup>

Aristotle said that time is the number of the first and later in motion. But if time is this, some kind of co-recollection of the first and later in motion, what is at rest and motionless will not exist in time.

Sextus does not give us any further indication as to how he understands the function of co-recollection in this case. Given what he says about motion, however, we may infer that, according to his interpretation, Aristotle claimed that in observing a later stage of a change we remember together with it what has come earlier, and thus we form the concept of time.

3. In the section on physical change of the third book of his *Outlines of Pyrrhonism*, Sextus argues in favour of the non-existence of change, by considering first the possibility that change is perceptible and then that it is intelligible. He claims that it is not the case that change is perceptible, because the senses are affected simply by their objects, whereas change involves co-recollection (συμνημόνευσιν ἔχειν) of something in an earlier and later stage of a change (3.108):<sup>11</sup>

Furthermore, if change exists it is either perceptible or intelligible. But it is not perceptible, for the senses are simply passive, while change seems to involve co-recollection of both that from which it changes and that into which it is said to change.

Sextus, again, does not explain in detail the function of co-recollection. It is reasonable to suppose, though, that the concept of change, just like the concepts of motion and time, is formed, according to him, by observing

<sup>9</sup> Cf. Bobzien, in this volume, p. 316.

<sup>10</sup> Ἀριστοτέλης δὲ χρόνον ἔφασκεν εἶναι ἀριθμὸν τοῦ ἐν κινήσει πρώτου καὶ ὑστέρου. εἰ δὲ τοῦτο ἔστιν ὁ χρόνος, συμνημόνευσις τις τοῦ ἐν κινήσει πρώτου καὶ ὑστέρου, τὸ ἡρεμοῦν καὶ ἀκίνητιζον οὐκ ἔσται ἐν χρόνῳ.

<sup>11</sup> πρὸς τοῦτοις, εἰ ἔστι τις μεταβολή, ἥτοι <αἰσθητή ἔστιν ἢ νοητή. καὶ αἰσθητή μὲν οὐκ ἔστιν· αἱ μὲν γὰρ> αἰσθήσεις ἀπλοπαθεῖς εἰσιν, ἡ δὲ μεταβολή συμνημόνευσιν ἔχειν δοκεῖ τοῦ τε ἐξ οὗ μεταβάλλει καὶ εἰς ὃ μεταβάλλειν λέγεται.

something at a certain state and by recalling together with it its different state at a previous stage.

4. In his *Against the Grammarians*, while arguing against the existence of long syllables in a way very similar to the present argument about wholes and parts, Sextus presents a view according to which we conceive of long syllables by way of co-recollection (κατὰ συμνημόνευσιν) (*M* 1.129, trans. D. Blank 1998 modified):<sup>12</sup>

But if they say that the long syllable is conceived by way of co-recollection (that is, we grasp the sound now being said while remembering the one said before and we conceive a long syllable as the compound of both of these), if they say this, they will precisely be granting that such a syllable is non-subsistent.

That is to say, in perceiving the sound which is now being uttered, we remember the sound which has already been uttered, and we conceive of both together as a long syllable; the long syllable is thus conceived of as a whole in relation to the first and second sound from both of which it is constituted.

5. In the first book of his *Against the Logicians*, Sextus once again talks of co-recollection, this time in the context of a discussion which he himself compares to that of wholes and parts (*M* 7.276–80). The topic here is the relation between the term ‘man’ and properties such as ‘animal’, ‘rational’ and ‘mortal’, a relation which is similar, according to Sextus, to that between a man and his physical parts, for instance his hand, his head or his leg; just as the whole man cannot be the sum of his physical parts, Sextus argues, ‘man’ cannot be the combination of properties. More specifically, Sextus’ argument seems to be that ‘man’ cannot be the combination of ‘animal’, ‘rational’ and ‘mortal’, because they are not all present together at all times; in the case of ‘rational’ he explicitly refers to the fact that men are rational only at some times, while in the case of ‘mortal’ he points out that it is by co-recollection (κατὰ συμνημόνευσιν) that we conceive of a man as mortal (*M* 7.279, trans. R. Bett 2005, modified):<sup>13</sup>

<sup>12</sup> εἰ δὲ λέγοιεν κατὰ συμνημόνευσιν νοεῖσθαι μακρὰν συλλαβὴν (τοῦ γὰρ προλεχθέντος φθόγγου μνημονεύοντες καὶ τοῦ νῦν λεγομένου ἀντιλαμβανόμενοι τὸ ἐξ ἀφοτέρων συντιθέμενον μακρὰν ἐνενοήσαμεν συλλαβὴν) – εἰ δὲ τοῦτο λέγοιεν, οὐδὲν ἄλλο ἢ ἀνυπόστατον ὁμολογήσουσιν εἶναι τὴν τοιαύτην συλλαβὴν.

<sup>13</sup> τὸ γοῦν θνητὸν εὐθέως, ὅτ’ ἔσμεν ἄνθρωποι, οὐ συμβέβηκεν ἡμῖν, ἀλλὰ κατὰ συμνημόνευσιν λαμβάνεται. θεωροῦντες γὰρ Δίωνα καὶ Θέωνα καὶ Σωκράτη καὶ κοινῶς τοὺς κατὰ μέρος ἡμῖν ὁμοίους τετελευτηκέναι λογίζομεθα ὅτι καὶ ἡμεῖς ἔσμεν θνητοί, καὶ μηδέπω τοῦ θανεῖν παρόντος ἡμῖν· ζῶμεν γὰρ δῆπουθεν.

At any rate, mortality is not a property of us as soon as we are men but is grasped by way of co-recollection. For on observing that Dion and Theon and Socrates, and in general particular men like us, have died, we reason that we too are mortal, even though having died is not yet present to us (after all, we are alive).

The use of co-recollection in this text is slightly different from the ones previously discussed: in observing perhaps that we are now young and healthy, we are reminded of other people like us who used to be alive but then died; we thus figure out that people like ourselves are mortal, although we are still alive and it is only the end of our life that is affected by mortality.

What do these five texts tell us about the function of co-recollection? It is a mental process which is initially triggered by our perception of something; on the basis of this perception, we recollect something else; by simultaneously having both the current perception and the memory of the previous experience, we conceive of something different which is not perceived about the thing which is perceived; and thus, we form a concept. To grasp better how co-recollection functions, let us take the case of motion: we first observe something in a certain place; we recollect that the same thing previously occupied a different place; simultaneously having both the perception of the thing in its current place and the memory of the same thing occupying a different one makes us conceive of it as having moved; so, we come to form the concept of motion. That is to say, to conceive of motion it is not adequate simply to perceive something; rather, what is required is simultaneously to perceive it in one place and to remember it being in a different one. For we cannot perceive motion, since perception can register only instantaneous events, not events over time; to form the concept of motion the rational function of recollection is needed.

It still remains to be understood, though, how this mental process of co-recollection is applicable to the account of wholes and parts as correlatives. In his *Outlines of Pyrrhonism* (e.g. *PH* 2.117–20, 125, 169), Sextus points out that correlatives, for instance ‘left’ and ‘right’, are always grasped simultaneously (συγκαταλαμβάνειν), since grasping the one always presupposes grasping the other, too. However, this is clearly different from what we have said concerning the function of co-recollection, which is meant to result in the formation of the concepts of a whole and of a part. For in the case of wholes and parts the following mental process of co-recollection seems to be at work: we perceive a part, for instance a man’s hand, and we come to form the concept of the whole man, by remembering



together with the current perception previous perceptions of his other parts. Thus, the process of co-recollection is here required, because in this case we cannot at the same time perceive every part that constitutes a man, for instance his back; however, by perceiving a particular part of a man and by simultaneously having the memory of previous experiences of other parts, we can conceive of the whole man by way of co-recollection.

### *Summnēmoneusis and the Stoics*

#### *Divided views*

But who are the dogmatists who introduce the mental process of co-recollection in their philosophical system? In particular, who are the philosophers to whom Sextus refers in the last paragraphs of our section, and who allegedly claimed that wholes and parts, and in general all relatives, are mere concepts that we come to form by way of co-recollection? Von Arnim (*SVF* 2.80) includes paragraphs 352–3 of the section on wholes and parts among Chrysippus' fragments; but this, of course, does not settle the issue.

Barnes (1988: 252–3) disagrees with Krämer (1971: 101) and refuses to accept that there were any dogmatists, or for that matter any Stoics, who defended the view that relatives are nothing but concepts, mere mental constructs. In particular, he argues against the claim that it is the Stoics to whom Sextus refers in the second book of his *Against the Logicians*, in which he reports that some dogmatists had to admit that relatives are not real but only in thought (*M* 8.453–4, trans. R. Bett 2005 modified):<sup>14</sup>

Moreover, demonstration is a relative (πρός τι). But relatives are only conceived of – they are not also real; so demonstration too is only in thought and not in reality. And that things which are relatively disposed (πρός τί πως ἔχοντα) are in fact preserved only in thought, and do not also have reality, is possible to show from the dogmatists' confession. For in sketching 'relative' they are in agreement in saying 'Relative is what is conceived of in relation to another thing.' But if it had a share in reality,

<sup>14</sup> ἔτι τῶν πρὸς τί ἐστιν ἢ ἀπόδειξις, τὰ δὲ πρὸς τι ἐπινοεῖται μόνον, οὐκέτι δὲ καὶ ὑπάρχει· τοίνυν καὶ ἡ ἀπόδειξις ἐν ἐπινοίᾳ μόνον ἐστὶ καὶ οὐκ ἐν ὑπάρξει. καὶ ὅτι τῶ ὄντι ἐπινοία μόνον σῶζεται τὰ πρὸς τί πως ἔχοντα, ὑπαρξίς δὲ οὐκ ἐστὶν αὐτοῖς, πάρεστι διδάσκειν ἐκ τῆς τῶν δογματικῶν ἀνθομολογήσεως. ὑπογράφοντες γὰρ τὸ πρὸς τι συμφώνως φασί· “πρὸς τί ἐστι τὸ πρὸς ἑτέρῳ νοούμενον”. εἰ δὲ γε ὑπάρξεως μετεῖχεν, οὐκ ἂν οὕτως αὐτὸ ἀπεδίδοσαν, ἀλλ’ ἐκείνως μᾶλλον “πρὸς τί ἐστι τὸ πρὸς ἑτέρῳ ὑπάρχον”. οὐκ ἄρα ὑπόκειται τι ἐν τοῖς οὔσι τῶν πρὸς τι.

they would not have presented it like that, but rather like this: ‘Relative is what has reality in relation to another thing.’ Therefore relatives do not exist at all in the things that there are.

Barnes is perfectly right that, on the basis of this passage, it is not at all clear that we should go along with Sextus and accept that the dogmatists were committed to the thesis that relatives are only in thought. It is reasonable, however, to infer both from this text and from the last paragraphs of our section on wholes and parts that Sextus thinks that the dogmatists’ view about relatives has some bearing on the issue whether or not relatives are mere concepts.

On the other hand, Baltzly 1998 argues extensively in favour of the thesis that the unnamed dogmatists to whom Sextus ascribes the view that wholes and parts are mental constructs are indeed the Stoics. Baltzly’s arguments are drawn from Stoic physics, and in particular from the Stoic theories of continuous matter and time. However, as Baltzly himself admits, his evidence offers us helpful insights into the possible motivations of the Stoics for advocating such a doctrine but is inconclusive. For what the Stoics actually said about infinity and the continuum does not necessitate the view that wholes and parts are mere concepts; it simply suggests that it would have been intelligible for them to embrace it, or at least that it makes sense why the Stoics could have been misunderstood by ancient doxographers as the proponents of such a view.

So, modern scholars are divided on this issue. But are there further reasons for believing that the mental process of co-recollection is a Stoic doctrine? No other author apart from Sextus uses the noun *συμνημόνευσις*, and very few authors use the verb *συμνημονεύειν*, which means ‘to remember something or to refer to something along with something else’. Of these authors most are late, for instance Didymus the Blind, Gregory of Nyssa, Michael of Ephesus, Eustathius of Thessaloniki and George Pachymeres, while in the case of earlier authors, namely Plutarch and Galen, we have only single occurrences of the verb in the whole of their work.<sup>15</sup> Hence, the four occurrences of the verb *συμνημονεύειν* in Marcus Aurelius’ *Meditations* (*Med.* 3.10.1.1; 8.5.1.3; 9.22.1.3; 10.31.1.7) are, I think, indicative of the fact that this was a Stoic term. Indeed, in one of these passages Marcus Aurelius uses *συμνημονεύειν* to refer to the mental

<sup>15</sup> Plutarch, *Coh. Ir.* 460a; Galen, in *Hipp. de Fract.* vol. 18b 327.9; Didymus the Blind, *De Trin.* 2.1–7, ch. 6 19.4; ch. 7 3.7, 3.14; 2.8–27, vol. 39 616.9; 677.33, 37; 748.57; 3, vol. 39 968.9; Gregory of Nyssa, *Contra Eunomium* 1.1.58.1; *Refutatio Confessionis Eunomii* 180.8; Michael of Ephesus, in *Soph. El.* 132.20; Eustathius, *Comm. in Dion.* 498.19; George Pachymeres, *Hist.* 59.19; 410.6.

process of paying attention to the whole in order to be reminded of the fact that we, as human beings, are parts of it (*Med.* 9.22; trans. A. S. L. Farquharson 1944):<sup>16</sup>

Make haste to your own governing self, to that of the whole, and that of this man. To your own, to make it a righteous mind; to that of the whole, to remind yourself (συμνημονεύσης) what it is of which you are a part; to this man's, that you may observe whether it is ignorance or design, and may reflect at the same time that his self is of one kind with your own.

However, since this passage does not concern the formation of the concepts of a whole and of a part, it has little in common with those discussed above from Sextus' works. In addition, the fact that Marcus Aurelius is the first Stoic philosopher in whose writings we find the verb *συμνημονεύειν* raises another difficulty; for even if we manage to establish that the notion of co-recollection is Stoic, it may still be unclear, owing to our scarce evidence, whether the terms *συμνημονεύειν* and *συμνημόνευσις* were used only by the late Stoics or whether they were used by the early Stoics as well.

### *No reason to exclude the Stoics*

Now, given that the mental process of co-recollection gives rise to concepts, perhaps it would be helpful to examine what our ancient sources report about the Stoic philosophers' theory of concept formation. In fact, there is a much-quoted text in which we find a fairly detailed account of how, according to the Stoics, human beings manage to form their conceptions (*ἔννοιαι*) and preconceptions (*προλήψεις*) of things (Aëtius 4.11.1–3, trans. Long & Sedley 1987):<sup>17</sup>

When a man is born, the Stoics say, he has the commanding-part of his soul like a sheet of paper ready for writing upon. On this he inscribes each one of his conceptions. The first method of inscription is through the senses. For by perceiving something, e.g. white, they have a memory of it when it has

<sup>16</sup> τρέχε ἐπὶ τὸ σεαυτοῦ ἡγεμονικόν καὶ τὸ τοῦ ὅλου καὶ τὸ τούτου. τὸ μὲν σεαυτοῦ, ἵνα νοῦν δικαϊκὸν αὐτὸ ποιήσῃς· τὸ δὲ τοῦ ὅλου, ἵνα συμνημονεύσῃς τίνος μέρος εἶ· τὸ δὲ τούτου, ἵνα ἐπιστήσῃς πότερον ἀγνοία ἢ γνώμη, καὶ ἅμα λογίσῃ ὅτι συγγενές.

<sup>17</sup> οἱ Στωϊκοὶ φασιν· ὅταν γεννηθῇ ὁ ἀνθρώπος, ἔχει τὸ ἡγεμονικὸν μέρος τῆς ψυχῆς ὥσπερ χαρτίον εὐεργὸν εἰς ἀπογραφὴν. εἰς τοῦτο μίαν ἐκάστην τῶν ἐννοιῶν ἐναπογράφεται. πρῶτος δὲ [ὁ] τῆς ἀναγραφῆς τρόπος ὁ διὰ τῶν αἰσθήσεων· αἰσθανόμενοι γάρ τινος οἶον λευκοῦ, ἀπελθόντος αὐτοῦ μνήμην ἔχουσιν· ὅταν δ' ὁμοειδεῖς πολλὰ μνημαὶ γένωνται, τότε φαμέν ἔχειν ἐμπειρίαν· ἐμπειρία γάρ ἐστι τὸ τῶν ὁμοειδῶν <φαντασιῶν> πλήθος. τῶν δ' ἐννοιῶν αἱ μὲν φυσικῶς γίνονται κατὰ τοὺς εἰρημένους τρόπους καὶ ἀνεπιτεχνήτως, αἱ δ' ἤδη δι' ἡμετέρας διδασκαλίας καὶ ἐπιμελείας· αὗται μὲν οὖν ἐννοιαι καλοῦνται μόνον, ἐκεῖναι δὲ καὶ προλήψεις.

departed. And when many memories of a similar kind have occurred, we then say we have experience. For the plurality of similar impressions is experience. Some conceptions arise naturally in the aforesaid ways and undesignedly, others through our own instruction and attention. The latter are called ‘conceptions’ only, the former are called ‘preconceptions’ as well.

So, according to the Stoic doctrine of concept formation, which is very similar to what Aristotle had said on the same subject at the beginning of his *Metaphysics* (1.1.980a27ff.) and at the end of his *Posterior Analytics* (2.19.99b36ff.), human beings form individual memories (μνημαί) on the basis of their sense impressions and store them in the soul; many similar memories result in what is called ‘experience’ (ἐμπειρία), and this constitutes the indispensable basis of our concepts, and in general of all human knowledge. Hence, in forming our concepts we depend heavily on our memory, but this mental process of concept formation is considerably different from what we have been discussing concerning the formation of concepts by way of co-recollection. According to this general theory, we form a concept on the basis of similar impressions that we have stored in our memory; for instance, by repeatedly having the impression of a man we form the concept ‘man’. On the other hand, when we form concepts by way of co-recollection the function of this mental process is more complicated; for, as we have said, it involves perceiving something, on this basis recollecting something else, simultaneously having both the current perception and the memory of the previous experience, and finally conceiving of something different which is not perceived about the thing which is perceived. The Stoic general theory of concept formation, therefore, does not exclude the possibility that the Stoics introduced in their system the mental process of co-recollection.

Indeed, there are many other mental processes to which the Stoics referred in their attempt to analyse and explain our human ability to form concepts. In the section of the *Against the Physicists* which comes immediately after the section on wholes and parts, namely the section on body, Sextus enumerates some of the mental processes on the basis of which concepts are formed (M 9.393–5);<sup>18</sup> and a similar passage can be found in the *Against the Logicians* (M 8.59–60). According to the Stoics, Sextus claims, concepts are formed either by direct encounter with things that are manifest (κατ’ ἐμπέλασιν τῶν ἐναργῶν) or by transference from them (κατὰ τὴν ἀπὸ τῶν ἐναργῶν μετάβασιν). In the latter case, we can distinguish different kinds of mental processes: by way of resemblance

<sup>18</sup> Cf. Betegh, in this volume, pp. 165–9.

(καθ' ὁμοιότητα), for instance when from Socrates' portrait we form an impression of Socrates though he is absent; by way of composition (κατ' ἐπισύνθεσιν), for instance when from a man and a horse we form the concept of a Hippocentaur; by way of analogy (κατ' ἀναλογίαν), or more specifically by way of increase (κατὰ παραύξησιν) and by way of diminution (κατὰ μείωσιν), for instance when from a man of an average size we form the concept of a Cyclops and of a pygmy respectively. This list of concept-formation processes is not presented by Sextus as exhaustive, and there is no reason to suppose that it is. After all, there is a passage in Diogenes Laertius (7.53), in which more mental processes of a similar kind are added; namely, by way of transposition (κατὰ μετάθεσιν), for instance when we talk about eyes on the chest, and by way of opposition (κατ' ἐναντίωσιν), for instance when we talk about death, conceived of as the opposite of life.<sup>19</sup> Hence, it is tempting to suggest that the mental process by way of co-recollection could also have been in the Stoic list of mental processes by which we come to form our concepts.

It could nevertheless be suggested that Sextus' dogmatists should be identified with the Epicureans, who may have had better reasons to talk about co-recollection. The basis of such an objection could be found in the theories of signs developed during the Hellenistic period. Our ancient sources (e.g. Sextus Empiricus, *PH* 2.97ff.; *M* 8.151ff.) distinguish two kinds of signs; namely, commemorative (ὑπομνηστικά) and indicative (ἐνδεικτικά). Briefly stated, the distinction between them is the following: commemorative signs are supposed to reveal something temporarily non-evident on the basis of previous observation, memory and experience, while indicative signs are supposed to reveal something naturally non-evident by means of theoretically grasping the necessary relations between things on the basis of rational inferences. For instance, smoke is a commemorative sign of fire, whereas motion is an indicative sign of the existence of the soul. Reflecting for a moment on the English translation of the term ὑπομνηστικά σημεία as com-memorative signs, we immediately think of a possible connection between this kind of sign and the mental process of co-recollection; we perceive something and simultaneously recollect something else. Moreover, on the basis of what we learn from Philodemus' work

<sup>19</sup> There is a similar list of mental processes which is attributed to the Epicureans. According to Diogenes Laertius (10.32), the Epicureans, too, claimed that all concepts arise from our sense perceptions by way of confrontation (κατὰ περίπτωσιν), analogy (κατ' ἀναλογίαν), similarity (καθ' ὁμοιότητα) and combination (κατὰ σύνθεσιν). Unfortunately, our ancient sources do not help us in deciding whether it is the Epicureans who influenced the Stoics on this topic, or the other way round.

*On Signs*, it seems that the Epicureans would have favoured the inductive inferences of commemorative signs. It is highly unlikely, however, that the distinction between commemorative and indicative signs can be attributed to the Epicureans; for the way in which the distinction is discussed in our sources suggests that it originated in a dispute between the ancient medical schools of the Empiricists and the Rationalists.<sup>20</sup>

But even if we were to assume that it was the Epicureans who introduced the mental process of co-recollection, notwithstanding the fact that there is no evidence to that effect, nothing could exclude the possibility that the Stoics, too, used it. For there should be no doubt that memory played a significant role in Stoic epistemology, though this topic has been generally neglected in the modern literature on Stoicism. I have argued elsewhere that the use of memory seems to have been at the centre of an important debate between the Stoics and the Sceptics.<sup>21</sup> For the purposes of this paper, it is sufficient to remark briefly that, according to the Stoics, the use of memory is not irrational but crucially involves a power of reason; this, after all, would be in agreement with what Sextus claims in the second book of his *Against the Physicists* (M 10.64) about the mental process of co-recollection, namely that it involves not only our senses but our reason too.

Plotinus criticized Zeno's definition of memory as a storehouse of impressions (M 7.373), because he believed that such a position implies the corporeality of memory, and thus of the soul, but also presents memory as something passive. There are many passages in the *Enneads* in which Plotinus repeats that memories, just like impressions, are not affections (πάθη) but activities (ἐνέργειαι) of the soul; they should not be seen as imprints on some corporeal substratum, for they exist not because of impressions being stored in the soul, but because of the soul's capacity to form, store and retrieve impressions.<sup>22</sup> I have argued that Plotinus' criticism is not entirely justified. It is true, of course, that the Stoics defined sense impressions as affections and not as activities; but although memory in the sense of a storehouse of impressions may be said to be passive, memory as an act of remembering by retrieving the appropriate impression stored in one's memory presupposes what the Stoics called 'assent' (συγκατάθεσις). In other words, although one's memory may retain both

<sup>20</sup> On the origins of the distinction between commemorative and indicative signs as well as on the Epicurean views on sign-inferences, see Allen 2001: 88–146, 194–241.

<sup>21</sup> Cf. Ierodiakonou 2007.

<sup>22</sup> E.g. 3.6.1.8–14, 2.42–4; 3.28–30; 4.3.26.29–32; 4.5.3.26–38; 4.6.1.1–11, 18–23.

true and false impressions, in an actual act of remembering, assent is presupposed and the impression which one retrieves needs to be a true impression for this to count as a case of remembering. It is in this sense, therefore, that the ancient Greek verbs ‘to remember’ (μνημονεύειν/μηνύσθαι) are success words, just like the ancient Greek verbs ‘to know’ (γινώριζειν/ἐπίστασθαι). Hence, in his *Academica* (2.21) Cicero has the Antiochean Lucullus defending the Stoic position that it is one thing, for instance, to have a sense impression of something white and another to perceive that something is white; and in a later passage he draws the following conclusion (Cicero, *Acad.* 2.38, trans. C. Brittain 2006):<sup>23</sup>

In fact, by not allowing people to perceive and assent, there’s a sense in which the Academics actually rob them of their minds . . . But there are other consequences, too: neither memory, nor conceptions, nor the arts can exist without assent.

It seems, therefore, that on the Stoic view the use of memory does involve reason; the fact that the notion of co-recollection is not based only on sense perception but also on some kind of reasoning could thus help to rebut any objection suggesting that the Stoics were not the ones who introduced the mental process of co-recollection, on the ground that memory for the Stoics is allegedly passive or irrational.

### *Misguided attribution to the Stoics*

But do we have any positive evidence which actually associates the Stoics with the view that wholes and parts, and in general all relatives, are mere concepts? In his fourth *Ennead*, Plotinus wonders whether the Stoics believed that what they called the ‘somehow disposed’ (πῶς ἔχον) is real or only in thought (4.7.4.8–15, trans. A. H. Armstrong 1984, modified):<sup>24</sup>

But if they hold that life and soul are nothing but the breath, what is this ‘somehow disposed’ which they are always talking about, in which they take refuge when they are compelled to posit another working principle besides bodies? If, then, not every breath is soul, because there are innumerable soulless breaths, but they are going to assert that the breath being somehow

<sup>23</sup> *at vero animus quodam modo eripitur iis quos neque sentire neque absentiri volunt . . . sed haec etiam sequuntur, nec memoriam sine adensione posse constare nec notitias rerum nec artes.*

<sup>24</sup> εἰ δὲ μηδὲν παρὰ τὸ πνεῦμα τὴν ζωὴν καὶ τὴν ψυχὴν τίθενται, τί τὸ πολυθρύλλητον αὐτοῖς πῶς ἔχον, εἰς ὃ καταφεύγουσιν ἀναγκαζόμενοι τίθεσθαι ἄλλην παρὰ τὰ σώματα φύσιν δραστήριον; Εἰ οὖν οὐ πᾶν μὲν πνεῦμα ψυχὴ, ὅτι μυρία πνεύματα ἄψυχα, τὸ δὲ πῶς ἔχον πνεῦμα φήσουσι, τὸ πῶς ἔχον τοῦτο καὶ ταύτην τὴν σχέσιν ἢ τῶν ὄντων τι φήσουσιν ἢ μηδέν. Ἄλλ’ εἰ μὲν μηδέν, πνεῦμα ἀν εἶη μόνον, τὸ δὲ πῶς ἔχον ὄνομα.

disposed is soul, they will say either that this somehow disposed and this disposition belong to the class of real beings or that it does not. But if it does not, then soul would be only breath and the somehow disposed a mere word.

In this connection, let me refer again to Sextus' passage from his *Against the Logicians* (M 8.453–4), in which he reports that some dogmatists had to admit that relatives are not real but only in thought. For in that passage, as in other passages,<sup>25</sup> Sextus starts the discussion with the notion of something being relative (πρός τι) and soon moves to the notion of something being relatively disposed (πρός τί πως ἔχον). But although by Sextus' day these notions seem to be used interchangeably, we should first draw the distinction between the 'somehow disposed' (πως ἔχον) and the 'relatively disposed' (πρός τί πως ἔχον) and then try to figure out whether it was really the Stoics who considered relatives as only in thought.

There is no doubt that the somehow disposed and the relatively disposed constitute two of the four Stoic so-called categories, namely the third and the fourth. The doctrine of the Stoic categories is quite difficult to understand, even at a basic level, and thus a matter of considerable controversy.<sup>26</sup> To gain at least a rough idea of what the four Stoic categories represent, let me list them and then give examples which the Stoics themselves most probably used in order to illustrate them. The four categories are the following (e.g. Simplicius, in *Cat.* 66.32–67.19; Plotinus 6.1.25.1–3): substance (ὑποκείμενον), the qualified (ποιόν), subdivided into the commonly qualified (κοινῶς ποιόν) and the peculiarly qualified (ιδίως ποιόν), the somehow disposed (πως ἔχον), and the relatively disposed (πρός τί πως ἔχον). It seems that the Stoic categories are a classification of characterizations of things: either we characterize a thing as a certain matter; or as a certain matter being qualified in a certain way, for instance as a human being (Simplicius, in *Cat.* 212.26: 'the grammarian'), and this is the commonly qualified, or as Socrates, and this is the peculiarly qualified; or as a certain matter being somehow disposed, for instance as virtue, that is the soul being disposed in a certain way (Seneca, *Ep.* 113.2); or finally, as a certain matter being relatively disposed, for instance as being the man on the right or the son of somebody. Hence, both the somehow disposed and the relatively disposed are real things and there is no way that the

<sup>25</sup> Richard Bett has kindly brought to my attention that Sextus conflates the relatives (πρός τι) and the relatively disposed (πρός τί πως ἔχον) in yet another text, namely in his *Against the Ethicists* 114–18.

<sup>26</sup> On the Stoic so-called categories, see Graeser 1978; Menn 1999; Brunschwig 2003.



Stoics would have claimed that they are only in thought. But, then, how can we make sense of Sextus' and Plotinus' remarks?

We are immediately struck by the fact that the Stoics included in their list of four categories the relatively disposed and not the category of relatives, as Aristotle previously had done. Indeed, Simplicius reports that, according to the Stoics, not all relatives belong to the category of the relatively disposed;<sup>27</sup> all of the relatively disposed are relatives, but not all relatives are among the relatively disposed (*in Cat.* 166.15–29, trans. Long & Sedley 1987):<sup>28</sup>

To put what I am saying more clearly, they [the Stoics] call 'relative' all things which are conditioned according to an intrinsic character but are directed towards something else; and 'relatively disposed' all those whose nature it is to become and cease to be a property of something without any internal change or qualitative alteration, as well as to look towards what lies outside. Thus when something in a differentiated condition is directed towards something else, it will only be relative: for example tenor, knowledge, sense-perception. But when it is thought of not according to its inherent differentiation but merely according to its disposition relative to something else, it will be relatively disposed. For son, and the man on the right, in order to be there, need certain external things. Hence without any internal change a father could cease to be a father on the death of his son, and the man on the right could cease to be the man on the right if his neighbour changed position. But sweet and bitter could not alter qualitatively if their internal power did not change too. If, then, despite being unaffected in themselves they change because of something else's disposition relative to them, it is clear that relatively disposed things have their existence in their disposition alone and not through any differentiation.

Therefore, the Stoics seem to have thought that, in contrast to some other relatives, the relatively disposed are characterizations of real things that do

<sup>27</sup> In this the Stoics followed, most probably, Aristotle (*Cat.* 8a28–b3). For a full discussion of this Aristotelian passage and the problems in interpreting it, see Sedley 2002.

<sup>28</sup> εἰ δὲ δεῖ σαφέστερον μεταλαβεῖν τὰ λεγόμενα, πρὸς τι μὲν λέγουσιν, ὅσα κατ' οἰκεῖον χαρακτῆρα διακείμενα πῶς ἀπονεύει πρὸς ἕτερον, πρὸς τι δὲ πῶς ἔχοντα, ὅσα πέφυκεν συμβαίνειν τινὶ καὶ μὴ συμβαίνειν ἄνευ τῆς περὶ αὐτὰ μεταβολῆς καὶ ἀλλοιώσεως μετὰ τοῦ πρὸς τὸ ἐκτὸς ἀποβλέπειν, ὥστε ὅταν μὲν κατὰ διαφορὰν τι διακείμενον πρὸς ἕτερον νεύσῃ, πρὸς τι μόνον ἔσται τοῦτο, ὡς ἡ ἔξις καὶ ἡ ἐπιστήμη καὶ ἡ αἴσθησις· ὅταν δὲ μὴ κατὰ τὴν ἐνοῦσαν διαφορὰν, κατὰ φιλήν δὲ τὴν πρὸς ἕτερον σχέσιν θεωρῇται, πρὸς τί πῶς ἔχον ἔσται. ὁ γὰρ υἱὸς καὶ ὁ δεξιὸς ἔξωθεν τινῶν προσδεύονται πρὸς τὴν ὑπόστασιν· διὸ καὶ μηδεμιᾶς γενομένης περὶ αὐτὰ μεταβολῆς γένοιτο ἂν οὐκέτι πατὴρ τοῦ υἱοῦ ἀποθανόντος οὐδὲ δεξιὸς τοῦ παρακειμένου μεταστάντος· τὸ δὲ γλυκύ καὶ πικρὸν οὐκ ἂν ἀλλοῖα γένοιτο, εἰ μὴ συμεταβάλλοι καὶ ἡ περὶ αὐτὰ δύναμις. εἰ τοίνυν καὶ μηδὲν αὐτὰ παθόντα μεταβάλλει κατὰ τὴν ἄλλου πρὸς αὐτὰ σχέσιν, δῆλον ὅτι ἐν τῇ σχέσει μόνῃ τὸ εἶναι ἔχει καὶ οὐ κατὰ τινὰ διαφορὰν τὰ πρὸς τί πῶς ἔχοντα.

not have a basis in the individual things thus characterized.<sup>29</sup> Could it be, then, that the Stoics' opponents were confused in two respects? First, they misinterpreted the Stoic texts as implying that the relatively disposed are only in thought, because for the Stoics the relatively disposed do not have a basis in the individual things; and second, they failed to distinguish between relatives and the relatively disposed and thus concluded that for the Stoics all relatives, just like all the relatively disposed, are mere concepts. Sextus' passage may be said to confirm this, though I am perfectly aware that my suggestion is rather conjectural.

### Conclusion

To conclude, even if Sextus misinterprets the Stoics when he attributes to them the view that all relatives, and thus wholes and parts, are mere concepts, it still is the case that the Stoics are the most probable candidates to be the dogmatists with whom Sextus converses in the last paragraphs of our section from the *Against the Physicists*. In other words, what I have argued for is that the section on wholes and parts in the *Against the Physicists* ends with Sextus being engaged in a debate with Stoic views, or at least with what he considers the Stoics, or some of the Stoics, to have claimed about wholes and parts as relatives.<sup>30</sup> But this is not, I think, the only part of this section which bears the marks of Stoic philosophy. For instance, we also find here the Stoic example of the fist (e.g. *PH* 2.81; Alexander, in *Top.* 360), which is used in order to show that the case of the whole being nothing over and above its parts is analogous to a fist being nothing but a hand clenched (*M* 9.343). Besides, the whole–parts relation seems to have been important for all areas of Stoic philosophy: for physics, obviously for the reasons which are presented in the text under discussion; for ethics, since in our actions we should always take into consideration the fact that we are parts of the whole cosmos; and for logic, since division, for instance, crucially involves an understanding of the whole–parts relation. And Chrysippus is reported to have written a work with the title *On Parts*, a work which contained at least five books (Plutarch, *Comm. Not.* 1081F). The critical study of Sextus' text, therefore, provides us with valuable information about the ancient Greek understanding of the notions of a whole and of a part, including that of the Hellenistic philosophers in general, and of the Stoics in particular.

<sup>29</sup> For a thorough account of the Stoic views on relatives, see Mignucci 1988.

<sup>30</sup> For a recent discussion of the Stoic views on wholes and parts, see Scade 2013. I have not been able to take account of this paper, since it was published after I had submitted my contribution to this volume.

## CHAPTER 4

### *Body: M 9.359–440*

*Gábor Betegh*

#### **Introduction**

In view of the prevalent corporealism of the Hellenistic schools, one may expect Sextus' examination of body to be of special importance in the whole of *Against the Physicists*. Sextus' introductory remarks only reinforce this expectation. Yet Sextus almost immediately appears to leave behind the corporealist natural philosophers and other protagonists of the previous chapters of *Against the Physicists* to turn to an examination of the mathematicians' conception of body. By far the largest part of the chapter is then devoted to arguments against the conceivability of fundamental geometrical notions, making long sections of our chapter basically identical to the main bulk of *Against the Geometers*.

The chapter in many respects is at odds with Sextus' more usual sceptical strategy. Because of its almost exclusive focus on the mathematicians' conceptions, it is not a systematic consideration of alternative positions of different schools, although, as we shall see, Sextus is well aware of the variety of options, and the motivation behind why one may prefer one conception over another. In particular, he spends very little time and energy on that conception of body which can be ascribed to the most important members of the corporealist camp, namely the Stoics and the Epicureans. He does not discuss in an explicit manner whether, and if so

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how, the arguments against the conceptions of the mathematicians would affect the corporealists' views. More specifically, it is not examined whether the question of the conception and existence of bodies can be separated from the question of the existence of fundamental geometrical objects.

The arguments of the chapter are moreover exclusively negative; we are not presented with arguments for the existence of body and fundamental geometrical objects. The conclusion of each series of arguments is that body – and the fundamental geometrical objects – thus conceived cannot exist. We can assume that the reader should provide the positive side on the basis of the common opinion, shared by theoreticians and laymen alike, that bodies exist.<sup>1</sup> The question is, however, more complicated in the case of geometrical objects, for their ontological status was vigorously debated. Yet even in their case, Sextus provides little, if anything, in defence of their existence.

A structural overview may help the orientation in this long and fairly complex chapter and can be found in the first appendix to this chapter.<sup>2</sup>

I shall follow the structure of Sextus' discussion and speak about each section in turn. Yet, as mentioned above, Sextus' attack on fundamental geometrical notions in the long section E overlaps to a large extent with the corresponding parts of *Against the Geometers*. Now, *Against the Geometers* and its individual arguments have recently been examined in considerable detail by other scholars. After Ian Mueller's pioneering paper, originally read at a previous Symposium Hellenisticum, Luciano Floridi has set Sextus' place in the broader history of 'mathematical scepticism' in a series of studies, whereas Wolfgang Freytag has published a book-length study of Sextus' arguments against the fundamental concepts of the mathematicians concentrating on the twin texts in *M* 3 and *M* 9.<sup>3</sup> In an even more recent study Guillaume Dye and Bernard Vitrac have examined the sources and targets of Sextus' attack on geometry.<sup>4</sup> In view of these studies, I shall concentrate primarily on structural questions, Sextus' argumentative strategy, and the sections before and after Section E. In [Appendix II](#), I shall

<sup>1</sup> For the parallel case in the discussion of time, see Warren 2003: 314–15 with important qualifications by Bobzien, in this volume, pp. 280–2; see also Dye & Vitrac 2009: 163 for the geometrical notions.

<sup>2</sup> The hierarchical ordering of the sections is not always as clear as it might appear from my numbered list.

<sup>3</sup> Mueller 1982; Floridi 1998, 2000 and 2004; Freytag 1995.

<sup>4</sup> Dye & Vitrac 2009. I received this valuable study shortly before I had to submit this chapter for publication. In some cases Dye and Vitrac and I have arrived at similar conclusions independently of each other; I note these points in footnotes.

present additional remarks on the doxographical material contained in the chapter, including a comparison with parallel texts.

### Setting the agenda

In the last sentence of the [previous chapter](#), in 358, Sextus announces the successful completion of the investigation concerning the active principle and indicates that he will now turn to a general, more common treatment of the active and the material principles. It means that we have arrived at the end of the discussion which started at the very beginning of the book, at *M* 9.13. As the reader may remember, Sextus started the treatise with a methodological introduction in which he recommended an attack on what constitutes the principal, most comprehensive and essential (τὰ κυριώτατα καὶ συνεκτικώτατα, *M* 9.1), because, as he argued, an assault on what is common to the individual elements of the doctrine is ‘the more graceful’ (χαριέστερος, *M* 9.3) way of demolishing the dogmatic edifice of the opponent. He put into practice this recommendation by stating, first, that the physicists customarily distinguish between two (kinds of) principles of the universe, active and passive, and by turning, in the next step, to an attack on the notion of god as the active principle. The last sentence of 358 marks the end of the extended discussion of the active principle, the ensuing discussion of cause, and the chapter on parts and wholes.

The reader would expect Sextus now to turn to a discussion of the passive principle. And this is indeed what we find in the introduction of the parallel section in *PH* 3.30: having finished the discussion of the active principle, Sextus announces that he will now continue with an investigation of the material principle (ὕλική ἀρχή), and he first of all provides a doxographical survey of the relevant views. In the articulation of the topics, as well as in formulating the transition, Sextus in *PH* 3.30 is closely following his doxographical source, as the clear parallel with Ps.-Galen’s *De Historia Philosophica* shows (for an analysis of the doxographical survey, as well as the nature of the relationship between Sextus and Ps.-Galen, see [Appendix II, section 1](#)). In *PH* 3 after the doxographical survey Sextus immediately points out and exploits the disagreement (*diaphōnia*) among the different views about the material principle(s), and it is only at this point that he turns to a discussion of body. He says that the infinite variety of views about the material principle would in itself suffice to demonstrate the inapprehensibility of the material principle; but let us treat the question more generally, by showing the inapprehensibility of body.

In *M* 9 Sextus presents what is basically the same material as part of a different strategy. Instead of turning to the material or passive principle, Sextus immediately announces the more general discussion, which could provide a common treatment of the two principles, and thus a new beginning. Moreover, if it is true that the discussion he announces here will give a more common (κοινότερον) treatment of the principles and he sticks to his methodology privileging an assault on what is more common, then we should expect that the attack on the physicists reaches its peak in this chapter. Indeed, we may ask why he did not start the whole treatise with what he promises to do now: in so far as this approach is even more general, it may have made *Against the Physicists* even ‘more graceful’.

A general discussion of body could in fact fulfil the role of a more general attack on most of the physicists and also a common investigation of both principles in so far as, at least according to some schools of thought, both the active principle, or god, and the passive principle are bodies. We may think first of all of the Stoics – who must figure prominently in Sextus’ original distinction between the active and the passive principles, as well as in his treatment of god as the active principle – for whom the discussion of body precedes that of the principles (cf. Diogenes Laertius 7.132). Moreover the forthcoming discussion could cover those thinkers as well who do not distinguish between the active and the passive principles. Remember that Sextus said that only the best of the physicists applied this distinction.<sup>5</sup> The prevalent corporealism of the Hellenistic schools, and of most of the previous philosophers, would then fully justify the importance attached to the attack on the notion of body.

The first sentence of the chapter, moreover, distinguishes between corporealists and incorporealists in a way that seems to confirm our expectation that Sextus now wants to raise the generality of the discussion to the highest level by concentrating on the highest and most primary element (περὶ τῶν ἀνωτάτω καὶ ἀρχικωτάτων στοιχείων), which, in the case of the corporealists, is body. Yet he immediately equates this highest and most primary level with the traditional elements and then starts his doxographical survey: ‘Pherecydes of Syros said that earth is the principle and element of all things, Thales that it is water . . .’<sup>6</sup> Then comes (almost) the same doxography as the one he gives for the *material principle* in *PH* 3.<sup>7</sup>

<sup>5</sup> *M* 9.12: ἐπεὶ οὖν τοιαύτη τις ἔστι παρὰ τοῖς ἀρίστοις τῶν φυσικῶν διάταξις . . .

<sup>6</sup> Note that the reference to elements is missing from the parallel in *PH* 3.30.

<sup>7</sup> The introductory sentence in *Ps.-Galen* also marks out the ensuing list as an inventory of views about the passive or material principle.

Identifying the most general level with the element(s) or material principle(s) creates a problem exactly in the cases of those who do make the distinction between active and passive principles; for in the doxographical list we find, for example, that the elements of Empedocles are earth, water, air and fire, whereas the elements of Anaxagoras are the *homoiomerēs*. However, in the introductory section, when Sextus was arguing that the best of the physicists distinguish between the active and passive principles, he explicitly included Empedocles' Love and Strife and Anaxagoras' Mind as active principles (*M* 9.4–10). So in the case of these philosophers it is simply not true that their respective (material) elements with which they figure in the list would constitute the most fundamental level common to the active and passive principles; in these cases the elements are merely the passive principles – in conformity with the announced topic of *PH* 3.30 but in contrast with Sextus' proclaimed agenda in *M* 9. Turning to these would be an appropriate sequel to the discussion of the active principle, but this is not what Sextus proposed to do in our chapter.<sup>8</sup>

I have found one addition which may signal that Sextus acknowledges the difference between the two strategies. The lists in Ps.-Galen and *PH* 3.30 end with the Pythagoreans (numbers), the mathematicians (limits of bodies) and, finally, Strato (qualities). The list in *M* 9 omits Strato, but, more importantly, adds the Platonists with the Forms. Clearly, the Platonic Forms would be inappropriate for the list of material principles in Ps.-Galen and *PH* 3.30 but are appropriate on the list of highest principles in *M* 9.

Having presented his doxographical survey of both corporealists and incorporealists, Sextus then restates that it will be possible to argue against the members of the two groups in common (ἐνέσται πρὸς πάντας κοινῶς ἀντερεῖν) by going through all the difficulties concerning bodies on the one hand and the incorporeals on the other. By showing that there is no consistent conception of body forthcoming, we can undermine all the

<sup>8</sup> The situation is actually even more complicated in the case of the Stoics. The Stoics most probably figured in the original doxographical list with their four elements as we can see from Ps.-Galen's text. Yet, even though it is true that a general treatment of body can be prior to the treatment of the active and passive principles, it is not the case that a treatment of the four elements could fulfil that role: in the Stoic ordering of metaphysical topics, the four elements come after the two principles. Remarkably, the Stoics appear with their four elements also in the parallel passage in *PH* 3.30, but there Sextus adds a note – apparently absent from his source that he otherwise follows almost verbatim – which indicates that he is aware of the fact that, technically, he should be speaking about matter as such and not about the elements (περὶ γὰρ τῆς τερατολογουμένης ἀποίου παρά τισιν ὕλης, ἣν οὐδὲ αὐτοὶ καταλαμβάνειν διαβεβαίουσιν, τί δεῖ καὶ λέγειν. The priority of unqualified matter is also acknowledged in *M* 10.312.) And in our passage he should of course be speaking neither about the four elements, nor about unqualified matter, but simply about body.

corporealists views at once, and we can then proceed in a like manner with the other group and raise puzzles concerning incorporeals. Note that this last promise is never fulfilled in *M* 9–10. In *PH* 3 the general discussion of body is followed by a general discussion of incorporeals, almost as long as the preceding general discussion of body. In *M* 9–10, by contrast, Sextus never actually delivers a general discussion of incorporeals understood as the common principles of the incorporealist group; what we are given instead is a one-by-one treatment of incorporeals. Moreover, the discussions of the individual incorporeals do not focus on those specific incorporeals that figure in *M* 9.364 as the first principles of the respective incorporealist philosophers. The topics covered in the first chapters of *M* 10 involve two of the Stoic incorporeals – place and time – but include motion as well. Number, as the Pythagoreans' first principles, comes only after these discussions, whereas the Platonists' Forms do not receive a separate treatment, but only some remarks embedded in the discussion of the Pythagoreans' numbers. And, to confuse things even further, the discussion of the limits of bodies, the alleged first principles of the incorporealist mathematicians, is not part of the discussion of the incorporeals but takes up the better part of the discussion of body, the common principle of the corporealists. These oddities in the arrangement of the material, as well as the discrepancies between announced plans and realizations, are characteristic of *M* 9–10 as compared with *M* 3: Sextus apparently does not succeed in integrating his more abundant source material in a large-scale scheme.

### The corporealists' and the mathematicians' conceptions of body

In accordance with the initial distinction between corporealists and incorporealist, Sextus announces at *M* 9.366 that he will start with the conception (ἐννοία) of body as the ultimate principle of the corporealists. He immediately discards an account, which, he says, some ascribe to Pythagoras and according to which body is 'what is capable of being acted upon or of acting' (τὸ οἷόν τε παθεῖν ἢ διαθεῖναι).<sup>9</sup> He justifies this move by recalling that the previous discussion has already shown the absurdity of the conceptions of cause and effect: if there is no acceptable account of

<sup>9</sup> The verb διαθεῖναι is not the most common match for παθεῖν in this definition; it is more usual in grammatical contexts and in any case Sextus turns to the more common ποιεῖν language a few lines later. The phrase of course goes back to Plato's *Sophist*, in which it is suggested as a definition of being that can be acceptable to both corporealists and incorporealist. The attribution to Pythagoras might come from a Pythagoreanizing interpretation of the Platonic material.



cause and effect, the corporealists cannot give an account of body in causal terms. This move, I think, is entirely justified irrespective of the further problem whether or not everybody on the list of corporealists would accept this as a valid conception or definition of body.<sup>10</sup>

Sextus' next move is considerably trickier however; for he continues by declaring quite abruptly: 'We must now organize (συντακτέον) the matter at hand according to the conceptions of the mathematicians.' The formulation is not entirely clear,<sup>11</sup> but the idea apparently is that in so far as the causal conception of body has been discredited, we should launch the common attack on the corporealist branch of physicists with an examination of the conceptions of the incorporealist mathematicians.<sup>12</sup> As we shall see, this will involve, first of all, the geometers' conception of body, according to which body is that which has three dimensions (τὸ τρεῖς ἔχον διαστάσεις) and, then, their conceptions of dimensions, and, at a later stage, that of point, line and surface. Sextus does not motivate this move, but the wording and the subsequent discussion in the chapter strongly suggest that showing the absurdity of the mathematicians' conception is considered here not just as one among many, but the single most suitable strategy for such a joint attack on the corporealists' principle. Sextus never actually proves this point, so he never shows that once we have discarded the causal account of body, the remaining options will be covered by an attack through the geometers' notions. In so far as this manoeuvre governs

<sup>10</sup> The prime candidates are obviously the Stoics. It has, however, been debated whether they would accept the capacity to act or be acted upon as providing a definition of body, or, being exclusive to bodies, it can merely function as a criterion of corporeality. Reesor 1954 and more recently Falcon 2005: 52 treat it as the Stoic definition of body. Long & Sedley 1987 argue on the other hand: 'It is essential to see that the capacity to act or be acted upon, though peculiar to bodies, is not advanced as a defining characteristic of body *per se*. In confining this capacity to bodies, the Stoics were not redefining body but radically rejecting the thesis, accepted by Plato and Aristotle, that incorporeals can have any causal efficacy' (vol. 1, 273). The question depends on whether we accept that the Stoics in general, and Chrysippus in particular, agreed with Antipater that we obtain a definition by specifying a necessary property of the definiendum which is unique to it. On the Stoic definitions of definition, see the Schol. to Dionysius Thrax 1.107.5–7 (= SVF 2.226) and Diogenes Laertius 7.60, with a thorough discussion in Brittain 2005: 186–91. It is equally true on the other hand that the texts most often referred to in this connection, Cicero, *Acad.* 1.39 and S.E. *M* 8.263, do not present it as a Stoic definition of body.

<sup>11</sup> There might also be a textual problem. The MSS give συντακτέον, which is accepted by Bekker, whereas Mutschmann, followed by Bury, conjectures συνακτέον. συνάγω is normally used by Sextus in the sense of 'to conclude' as by bringing the premises together. If we accept the emendation, perhaps we should take the verb in a hostile sense, as when warriors engage with each other in battle (cf. LSJ s.v. 3).

<sup>12</sup> This seems to be reinforced also by the fact that the μέν at the beginning of the paragraph dealing with the causal notion of body is picked up by the δέ at the beginning of the section introducing the mathematicians' conception.

most of the subsequent discussion, a general appraisal of the success of the chapter largely depends on the question whether and how far Sextus' move to turn to the mathematicians is legitimate. How far will the corporealists accept an attack on their notion of body through an attack on the mathematical conception of body, and related mathematical notions?

Note first of all that the question is conceptual, and not metaphysical; it is irrelevant – or at least it seems so incipiently – that Sextus' incorporealist mathematicians grant the status of principle to the limits of bodies and thus hold that bodies are derivative of, and thus ontologically dependent on, limit entities, whereas the corporealists denied this. What is at stake at this point is not the ontological relationship between geometrical objects and physical bodies, but the relationship between the mathematicians' and the corporealist physicists' conceptions of body.

Nicomachus' comments on the place of mathematics in the general system of knowledge in his *Introduction to Arithmetic* – possibly the most popular specimen of this flourishing genre in Sextus' time – are more relevant. Before turning to the definitions of the fundamental notions of arithmetic (number, even, odd, etc.), he argues, with frequent references to Plato, for the importance and foundational role of mathematics to science (ἐπιστήμη) and wisdom (σοφία): if we abolish mathematics, we abolish the other sciences as well (*Ar.* 1.6).

Of course, the view that geometry is indispensable to the description of the physical world finds its most illustrious expression in the *Timaeus*. Yet, one does not need to be a Platonist to accept some role of mathematics, and the use of mathematical notions, in the description of the physical world; one can think also of the way in which Aristotle specifies the use of mathematics in the scientific understanding of certain physical objects and phenomena (cf. *Ph.* 2.2). So, irrespective of one's position about the ontological status of geometrical objects, or the ontological relationship between geometrical and physical bodies, one may hold the view that fundamental geometrical notions are necessary for thinking about, and having a conception of, certain aspects of the physical world. Sextus' strategy seems to assume exactly this with specific regard to the corporealists' common first principle: once the causal account of body has been eliminated, the corporealists' conception of physical body will, at some level of analysis, necessarily involve fundamental geometrical notions. If those geometrical notions turn out to be incoherent and untenable, the corporealists find themselves without a plausible conception of their own principle. The corporealists' principle can thus be attacked through a rejection of the relevant geometrical conceptions. Sextus appears to accept

the view expressed also by Nicomachus – ‘if we abolish mathematics, we abolish the other sciences as well’ – and turn it against the physicists: let us abolish geometry so that we abolish physics as well.

The validity of this strategy can, however, be contested by repudiating the entire discipline of geometry, or, more specifically, by denying the relevance of the allegedly requisite geometrical notions. First of all, there were schools, such as the Cyrenaics, the Cynics, and of course the sceptics themselves, who rejected geometry with other branches of mathematics as part of their wholesale dismissal of the sciences. This kind of indiscriminate rejection will, however, be of little significance for Sextus’ present purposes in so far as these schools will be unlikely to develop a dogmatist corporealist physics.<sup>13</sup> Yet there were others, namely the Epicureans, who rejected geometry in a targeted way and denied any truth to it exactly because of its incompatibility with their physical theory involving theoretical minima.<sup>14</sup> Such a comprehensive dismissal of the discipline involves, in all likelihood, a refusal to accept the validity of the fundamental notions of geometry and hence their relevance in the understanding of physical reality in general, and of body in particular. Moreover, the Epicureans’ specific reason for rejecting conventional geometry is precisely that the geometrical conception of spatial magnitudes, including limit entities, are fundamentally misconceived. As Sextus himself states explicitly, the proper object of geometry is continuous spatial magnitude (*M* 4.1), whereas the Epicureans emphatically deny that magnitudes are continuous. If so, they will not be prepared to accept the relevance of the geometrical notions at any level of the analysis of their conception of body. Indeed, there are reasons to think that one major source of Sextus’ arguments against the fundamental geometrical notions is the Epicurean polemics against the geometers. Furthermore, even if a corporealist physicist does not reject the entire (traditional) discipline of geometry as misconceived, he may still object that specific geometrical concepts, most importantly those of limit entities, are not applicable in the analysis and description of physical bodies; as we shall see, this might turn out to be the (early) Stoic position. In general, the pivotal point will be whether a given physical theory accepts the geometrical analysis of spatial magnitudes applied to physical spatial magnitudes.

The picture is complicated even further because some of the arguments in the chapter against fundamental geometrical notions aim to show

<sup>13</sup> On the Cyrenaic rejection of physics, see e.g. *M* 7.11 and 13.

<sup>14</sup> On the Epicurean approach to geometry, see Sedley 1976; White 1992: 230–9.

precisely that certain physical phenomena, such as the juxtaposition of limits of bodies, cannot be coherently described in geometrical terms (414–18; 431–3); and these arguments, once again, are likely to go back to Epicurean and Stoic sources.<sup>15</sup> So Sextus, on the one hand, seems to assume that the corporealists are bound to use geometrical notions in formulating their conceptions of physical body but, on the other hand, uses arguments coming from the corporealists to show that geometrical notions are inappropriate to describe physical bodies. In view of these considerations, it will be important to check at each major juncture of Sextus' argument how the most important representatives of the corporealists would react to that specific move.

It is worth noting, first of all, that, as other texts evince, Sextus is well aware that the mathematicians' conception of body formally differs from the corporealist physicists' conceptions. In *M* 1.21 he provides the following inventory:

Now they [i.e. bodies] are not perceptible as is clear from the conception of them. For body is either (i) a conjunction by aggregation of magnitude, shape, and resistance (ἀντισυπία), as Epicurus says, or (ii) that which is extended in three dimensions (i.e. that consisting of length, width, and depth), as the mathematicians say, or (iii) that which is extended in three dimensions and has resistance (ἀντισυπία), again as Epicurus says so that he can also distinguish it by this from the void, or (iv) a resistant mass (ὄγκος ἀντίτυπος) as others say (trans. Blank, modified).

In line with what we read in *M* 9, the conception referring exclusively to three-dimensional extension is attributed to the mathematicians – and to the mathematicians only. The causal conception of body ('what is capable of being acted upon or of acting') that has been briefly discarded at the beginning of our section in *M* 9 is not mentioned. On the other hand, three further conceptions are listed, two of which are explicitly ascribed to Epicurus, and all three of which make reference to resistance (ἀντισυπία).<sup>16</sup> From this fourfold list Sextus in *M* 9 focuses almost exclusively on the one attributed to the mathematicians.<sup>17</sup>

<sup>15</sup> Cf. Dye & Vitrac 2009: 181–2. One of Dye and Vitrac's principal theses is that, in *M* 3, Sextus primarily attacks geometry as a means of 'modelling' physical reality.

<sup>16</sup> Blank 1998 excises the last definition and argues in his commentary (96, n. 39) that it must be a later interpolation, because it is not attributable to anyone in particular and does not advance Sextus' argument.

<sup>17</sup> At the end of the chapter, in 437, he briefly considers a version of (i) in relation to the question whether bodies are perceptible.

At this point, it will once again be instructive to compare Sextus' strategy with the way in which he proceeds in the parallel passage in *PH* 3. The starting point is the same as in *M* 9: the account according to which body is that which can act or be acted upon is summarily discarded with reference to the previous discussion of cause and effect. Yet, Sextus then turns to what he takes to be the general conception of body: body is that which is three-dimensional *and has resistance* (τὸ τριχῆ διαστατὸν μετὰ ἀντιτυπίας, *PH* 3.39). In the subsequent discussion in *PH* 3 Sextus discusses and attacks ἀντιτυπία alongside the dimensions.<sup>18</sup> As the presence of ἀντιτυπία indicates, what is treated here as the general conception of body is not that of the mathematicians,<sup>19</sup> but the one that is ascribed to Epicurus in *M* 1 (cf. also *M* 11.226). It is worth noting that the author of the treatise *Are Qualities Incorporeal?* transmitted under the name of Galen attributes the exact same definition to the Stoics.<sup>20</sup> Thus, Sextus in *PH* 3.39 turns to the conception of body that he explicitly ascribes to Epicurus, but that might have been accepted also by the Stoics; if so, the conception targeted by Sextus could be common ground between the two most prominent contemporary representatives of the corporealist group. In *M* 9.367, by contrast, he turns to the conception of body that he attributes exclusively to the mathematicians.

Some in the corporealist camp, most prominently Aristotle, should accept the relevance of the mathematicians' conception; indeed he also defines body in similar terms at *Cael.* 1.1.268a7, *Ph.* 3.5.204b20 and 4.1.209a4–6. Yet, the Epicureans and Stoics might object at this point that three-dimensionality is not sufficient to define body.<sup>21</sup> As Sextus himself states in *M* 1.21 (quoted above), Epicurus needs to include resistance (ἀντιτυπία) 'so that he can also distinguish it [i.e. body] by this from the void'. In a similar vein, Sextus makes Epicurus say in *M* 10.222

<sup>18</sup> Incidentally, a successful dismissal of ἀντιτυπία could disqualify also the first conception of body attributed to Epicurus in *M* 1, even if Sextus does not mention that conception in *PH* 3.

<sup>19</sup> That the two conceptions are different is also emphasized by Annas & Barnes 2000 in their note ad loc., 153, n. 50.

<sup>20</sup> Ps.-Galen, *Qual. Inc.* 19.483.13–16 = *SVF* 2.381: ... τοῦ σώματος τοῦτον ὅρον εἶναι φασιν τὸ τριχῆ διαστατὸν μετὰ ἀντιτυπίας ... Cf. also Plotinus 6.1.26. Reesor 1954: 57 denies that the definition was accepted by the Stoics and maintains that the author of *Qual. Inc.* (whom, following Orth, she takes to be Albinus) and Plotinus apply their own definition of body in their polemics against the Stoics.

<sup>21</sup> We see here the historical origins of the long and exciting debate whether three-dimensional extension is sufficient to define body, a debate that will be taken up by Philoponus (cf. De Haas 1997 and Sorabji 1988) to flare up again in the early modern period with Descartes on the one side and people like Newton, Boyle, Locke and Leibniz on the other.

that body can never be conceived without ἀντισυρία; in that context, ἀντισυρία is presented as the differentia, while three-dimensionality provides the genus of per se existents comprising bodies and the void. And the Stoics should agree that three-dimensionality cannot in itself deliver a defining characteristic of body, because there is also the three-dimensionally extended extra-cosmic void. Indeed, the author of *Are Qualities Incorporeal* gives the very same reason why the Stoics also insisted that ἀντισυρία has to be included in the definition of body.<sup>22</sup> That ἀντισυρία is the distinguishing attribute (ἴδιον) of body is also stated at M 10.12 in the thought experiment that functions as an argument for the existence of place: if in thought we abolish everything, three-dimensional extension and hence place will still remain.<sup>23</sup>

Sextus, however, can have ready answers to these worries. He could point out, first of all, that resistance (ἀντισυρία) is a property that is primarily, if not exclusively, related to the causal characterization of a body; so we have effectively disposed of it with the destruction of the conceptions of cause and effect. Much more importantly, he could argue that even if the Epicureans and the Stoics do not accept that three-dimensional extension is a uniquely defining characteristic of body, their own conception also includes reference to three-dimensional extension; therefore they, too, must give an account of dimensions in order to make their conception of body intelligible – and this remains so, irrespective of their insistence on ἀντισυρία. At this point what the corporealists think about the validity of geometry is irrelevant. Indeed, it is of no immediate consequence whether the mathematicians and the physicists speak about the same thing, or the mathematicians' conception is of geometrical solids whereas the physicists focus on physical bodies, or how clear at all the

<sup>22</sup> Ps.-Galen, *Qual. Inc.* 19.483.10–14 = SVF 2.502. It may be objected how the inclusion of ἀντισυρία in the definition of body could be made compatible with the view that matter is 'unqualified being'. One possibility, I think, is that ἀντισυρία is not conceived as a tangible quality but rather as that feature of body which constitutes its causal efficacy; which, in the case of matter, is that it is capable of being acted upon.

<sup>23</sup> Falcon 2005: 53–4 argues that the Epicureans and the Stoics had both a general and a specific notion of body, such that the first, expressed in terms of three-dimensional extension only, included both geometrical and physical bodies, whereas the addition of ἀντισυρία in the second served to delimit physical bodies. This might be true in the case of the Stoics (cf. Diogenes Laertius 7.135 with the definition provided by the Stoic Apollodorus: 'A body is what is extended in three ways, in length, in breadth and in depth', apparently coming from a work called *Physics*). But it seems to me questionable whether the Epicureans were interested in such a generic concept of body enveloping both geometrical and physical bodies. On the whole, I think that the ancient sources correctly identify the primary motivation for the inclusion of ἀντισυρία that is true for both schools: to distinguish body from non-corporeal spatial entities such as the void.

parties were on this distinction;<sup>24</sup> what matters is that both conceptions involve three-dimensionality, and thus all parties need to be able to explain what they mean by that. As Sextus puts it in *M* 1.25: ‘Besides, anyone who conceives the body compounded of these dimensions must first know the dimensions themselves, in order to be able to know the body in addition’ (trans. Blank).<sup>25</sup>

To sum up: Sextus never shows that once we get rid of the causal account of body on the basis of the previous discussion of cause and effect, all other conceptions of body will include reference to extension in three dimensions.<sup>26</sup> But, if that point is granted, Sextus’ strategy turns out to be legitimate; actually, it is more economical than the strategy he uses in *PH* 3. Yet, he should have helped his reader by making his reasons more explicit instead of simply stating: ‘We must now organize the matter at hand according to the conceptions of the mathematicians.’

### **Excursus: an oddity in the mathematicians’ definition of dimensions**

The definition of body Sextus attributes to the mathematicians is completed by an account of the dimensions:

For they say that body is that which has three dimensions, length, breadth, depth, from which length is that which is from above to below, breadth is that which is from left to right, and the third dimension, that is depth, is that which is from front to back (367).<sup>27</sup>

In fact, Sextus characterizes the dimensions, and length in particular, in two different ways in the outset of the two main argumentative parts. When he starts the second series of arguments focusing on the different conceptions of line at 376, he characterizes length as ‘the greatest dimension of the body’ (τὸ μέγιστον ἦν τοῦτο τοῦ σώματος διάστημα), and not as ‘that which is from above to below’ as he does here. Sextus does not mention that he is using two different conceptions in the two sections; but

<sup>24</sup> Cf. Mueller 1982: 77: ‘I am inclined to think that the Stoics did not distinguish clearly between mathematical and physical body, but I doubt that anyone outside the Platonic tradition did so.’

<sup>25</sup> Sextus could even say that Epicurus’ alternative conception, listed in *M* 1, also involves magnitude and shape, so it is incumbent on him to say something about dimensions also in view of that account of body.

<sup>26</sup> At this point it becomes significant whether the fourth conception of body, ‘a resistant mass’, in the *M* 1 list was part of Sextus’ text or is a later addition as Blank 1998 argues (see n. 16 above). To show that it is necessary to give an account of dimensions in view of this conception, too, would certainly need further arguments.

<sup>27</sup> Bury puts into quotation marks only the first part of the sentence; I think it is clear that the second part is also meant to be part of the quotation, verbatim or not.

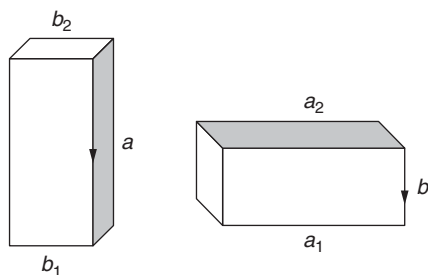


Figure 4.1

Stobaeus lists exactly these two in substantiating the claim that ‘length is said in many ways’ in the context of the definition of body as that which has three dimensions.<sup>28</sup> The characterization of dimensions in terms of directions is repeated almost verbatim in the parallel passage in *M* 3.19, with the difference that there, in accordance with what we find in Stobaeus – and as we shall see, in all other parallel texts – breadth is from right to left and not from left to right. Moreover, Sextus specifies in *M* 3.19 that length is the *first* dimension.<sup>29</sup>

The outcome of this characterization is the seemingly curious idea that the ‘length’ (μήκος) of an object will depend on the position of the object and not on its intrinsic geometrical properties. Thus, on Figure 4.1 ‘length’ will be *a* in the case of the left-hand object, and *b* in the case of the right-hand object. It is worth noting in this respect that in some non-technical contexts μήκος could also designate the height of an object even when its horizontal dimension was larger.<sup>30</sup>

Even more peculiar, on the definition quoted by Sextus, the dimension (διάστασις) of length is not simply the vertical dimension of the object: it has a fixed directionality as well, from above to below. It differs in

<sup>28</sup> Stobaeus, *Ecl.* 1.143.24 W: σώμα ἐστι τὸ τριχῇ διαστατόν, πλάτει, βάθει, μήκει ταῦτα δὲ πλεοναχῶς λέγεσθαι. ὅτε μὲν γὰρ μήκος [εἶναι] λέγεσθαι τὸ μέγιστον διάστημα τοῦ σώματος, ὅτε δὲ μόνον τὸ κάτωθεν ἄνω καὶ πλάτος ὅτε μὲν τὸ δεύτερον διάστημα, ὅτε δὲ τὸ ἐκ δεξιᾶς καὶ ἐξ εὐωνυμοῦ καὶ βάθος ὅτε μὲν τὸ εἰς ἑαυτὸ διάστημα, ὅτε δὲ τὸ πρόσω καὶ ὀπίσω. In Stobaeus’ text the definition is not assigned to anybody. Diels thought that it comes from Arius Didymus (fr. 19 Diels) and that it is a report of the Stoic view. Hence it is also included in *SVF* (*SVF* 2.357). I found no good reason to think that the definition as a whole, including the two characterizations of the dimensions, should be Stoic.

<sup>29</sup> *M* 3.19: ... σώμα μὲν ἐστι τὸ τὰς τρεῖς ἔχον διαστάσεις, μήκος πλάτος βάθος, ὧν πρώτη μὲν διάστασις ἐστὶν ἡ κατὰ μήκος ἄνωθεν κάτω, δευτέρα δὲ ἡ κατὰ πλάτος ἀπὸ δεξιῶν ἐπ’ ἀριστερά, τρίτη δὲ ἡ κατὰ βάθος ἀπὸ τῶν πρόσω εἰς τοῦπίσω. Curiously, Bury here translates ἄνωθεν κάτω by ‘up and down’.

<sup>30</sup> Cf. e.g. Aristophanes, *Aves* 1130, listed in LSJ, speaking about the height of a wall.



this respect from the relevant directions, which, as Sextus specifies in *M* 9.367, can be both from the top down or from the bottom up. Length as a dimension (διάστασις) appears to be identical with one of the two vertical directions (παράτασις).

As far as I am aware, it is not at all common in the technical mathematical literature to make an immediate connection between the three dimensions and the six directions.<sup>31</sup> Moreover, the directionality of length (and the other dimensions), not surprisingly, is not a common view in the mathematical literature. It is, however, closely paralleled in the *Definitions* transmitted under the name of Hero of Alexandria.<sup>32</sup> This is how that text defines line:

Line is length without breadth and without depth or what first takes existence in magnitude or what has one dimension and is divisible as well; it originates when a point flows from up downwards according to the notion of continuum, and is surrounded and limited by points, itself being the limit of surface (trans. Cuomo).<sup>33</sup>

And when defining surface, the author says that it is generated as the line flows from right to left along breadth,<sup>34</sup> and that solids come into being when the surface flows from before to behind.<sup>35</sup> The text of the *Definitions* clearly shows that the directionality of the dimensions is based on the genetic view of dimensions. This is reinforced by Sextus in *M* 3.19 where he claims that length is the *first* dimension, just as Hero tells us in the text

<sup>31</sup> The term I have translated as ‘direction’ is παράστασις in N, which has been corrected to παράτασις by Bekker, followed by Mutschman and Hicks. Neither the transmitted nor the emended term is part of the technical mathematical vocabulary. Neither is included in Mugler 1958. LSJ list only our passage where παράτασις would have the sense ‘direction of extension’, ‘dimension’. The closest we get in both respects is Nicomachus, who, however, uses the word περίστασις: ‘By these [i.e. depth, breadth and length] are defined the six directions (περιστάσεις) which are said to exist in connection with every body and by which motions in space are distinguished; forward, backward, up, down, right and left; for of necessity two directions opposite to each other follow upon each dimension, up and down on one, forward and backward upon the second, and right and left upon the third’ (*Ar.* 2.6.4, trans. D’Ooge). Note that Nicomachus clearly connects directions to motions. If we want to correct the received παράστασις in Sextus, I wonder if we are not better off making it uniform with Nicomachus’ text and read περίστασις.

<sup>32</sup> The parallel is also noted by Freytag 1995: 164 and Dye & Vitrac 2009: 176–7. Heiberg has argued that the work is a Byzantine collection of which 1–132 were derived from Hero. See, approvingly, Mansfeld 1998: 56.

<sup>33</sup> *Def.* 2: Γραμμή δέ ἐστι μήκος ἀπλατὲς καὶ ἀβαθὲς ἢ τὸ πρῶτον ἐν μεγέθει τὴν ὑπόστασιν λαμβάνον ἢ τὸ ἐφ’ ἐν διαστατόν τε καὶ διαιρετόν γίνεται δὲ σημείου ρύεντος ἄνωθεν κάτω ἐννοία τῇ κατὰ τὴν συνέχειαν, περιέχεται τε καὶ περατοῦται σημείοις πέρας ἐπιφανείας αὐτῇ γενομένη.

<sup>34</sup> *Def.* 8 [Ἐπιφανεία] γίνεταί δὲ ρύσει ὑπὸ γραμμῆς κατὰ πλάτος ἀπὸ δεξιῶν ἐπ’ ἀριστερὰ ρυείσης.

<sup>35</sup> *Def.* 11 περατοῦται δὲ πᾶν στερεόν ὑπὸ ἐπιφανειῶν καὶ γίνεται ἐπιφανείας ἀπὸ τῶν πρόσω [ἐμπροσθεν] ἐπὶ τὰ ὀπίσω ἐνεχθείσης.

quoted above that the line is ‘what first takes existence in magnitude’. The priority of line in generation is of course current among mathematicians in the Platonist-Pythagorean tradition. Nicomachus, for example, says that ‘The first dimension is said to be the line, for the line is that which is one-dimensional’ (*Ar.* 2.6.4), explaining a little later how the successive dimensions are generated. What the *Definitions* adds to this view is that the line comes into being when the point flows *downwards*.<sup>36</sup> The remaining difference is that both Hero and Nicomachus speak about line whereas Sextus and Stobaeus speak about length. As we shall see, the identification of length and line will be central to Sextus’ second set of arguments, and we shall turn back to this issue in that context.<sup>37</sup>

Now, the theory of the successive generation of dimensions, and especially the view that an  $n$  dimensional entity is generated from the  $n-1$  dimensional entity by ‘flowing’ (a theory that will come to the fore at a later point in Sextus’ discussion), can easily lead to the view that the entity thus generated has a directionality. Nonetheless, this idea in itself does not determine the specific direction assigned to the entity in question. The view that the line is the point flowed *from above* may at first seem to build too much on the image of ‘flowing’ – the point behaves as some kind of liquid and so it flows downwards – but of course this will not work with regard to the other dimensions. It seems much more likely that the specific directionality of the dimensions expresses the view that there is a hierarchy of directions: up, right and front are prior to down, left and behind. I wish to suggest that the source of this hierarchical systematization of dimensions and directions may be found in Aristotle’s startling discussion of the directions in the cosmos in *De Caelo* 2.2 together with a Neo-Pythagorean response to Aristotle’s criticism of the Pythagoreans in the same context.<sup>38</sup>

Building on the results of the no less curious treatment of the six directions in *De Incessu Animalium* 2–7, in which he connects the different directions with the functions of living beings, Aristotle says in *Cael.* 2.2.284b24–5 that: ‘Above is the starting point (ἀρχή) of length, right of breadth, before of depth.’ He adds a little later, at 285a19, that length is prior in the sense of generation to breadth, and – although he does not make it explicit here – presumably also to depth. The outcome matches exactly what we have found in the group of texts discussed above both in

<sup>36</sup> Sextus will speak about the generation of dimensions by ‘flowing’ at a later point. See below, pp. 161–2.

<sup>37</sup> See below, pp. 154–7.

<sup>38</sup> The relevance of the *De Caelo* is noted also by Dye & Vitrac 2009: 177.

the order of dimensions and in the respective starting points of the dimensions. Moreover, like Sextus, Aristotle speaks about length, breadth and depth, and not about line, surface and solid as the *Definitions* (and Nicomachus). Yet, clearly, Aristotle's results come not so much from a theory about the generation of dimensions (which seems to be the immediate background of the view in the *Definitions* and Sextus), but rather from the assumed connection between the directions and the functions of living beings. According to the analysis of *De Incessu Animalium* 4 – which is surely connected to the *Timaeus*' discussion of the directions in the organism – growth and the distribution of nutriment is from above to below (with the awkward consequence that the roots are the superior part of plants), locomotion is from the right to left (supported by the 'facts' that all men carry burdens on the left shoulder and that they hop easier on the left leg) and the sense organs, directing movements, are positioned in the front. The outcome is that although all bodies are extended in three dimensions, the six directions properly speaking characterize only animals and that the directions in an animal are relative neither to absolute directions nor to the perspective of the observer, but to the functions of the animal.<sup>39</sup> Aristotle adds, however, that we can assign directions to inanimate objects analogously and relative to ourselves.

It is remarkable that Aristotle couches the whole discussion of the directions of the cosmos in a polemic against the Pythagoreans. Ultimately his two points of criticism are (i) that the Pythagoreans speak only about right and left, omitting above and below, which are prior to them in so far as length is prior to breadth and (ii) that they assign right and left to inanimate things as well.<sup>40</sup> What seems to justify Aristotle's criticism is that right and left are included in the Table of Opposites, but the other two pairs of directions are not. I would suggest that some later Pythagoreans accepted the force of (i), but rejected (ii). The ensuing view is that in

<sup>39</sup> The question may actually be even more complicated. For Aristotle says: 'The distinctions are three, namely, above and below, front and its opposite, right and left – all these three oppositions we expect to find in the perfect [or: complete] body [cf. *Cael.* 1.1] – and each may be called a principle. Above is the principle of length, right of breadth, front in depth. Or again we may connect them with the various movements (Ἐτι δ' ἄλλως κατὰ τὰς κινήσεις), taking principle to mean that part, in a thing capable of movement, from which movement first begins . . . Hence we must not look for above and below, right and left, front and back, in every kind of body, but only in those which, being animate, have a principle of movement within themselves' (trans. Stocks). He thus clearly mentions the directions also before introducing the perspective of movements. It is not entirely clear whether the restriction expressed in the last sentence quoted is limited to approaching the directions from the perspective of motions.

<sup>40</sup> *Cael.* 2.2.285a25–7: Διὰ τε δὴ τὸ παραλείπειν τὰς κυριωτέρας ἀρχὰς δίκαιον αὐτοῖς ἐπιτιμᾶν, καὶ διότι ταύτας ἐν ἅπασιν ὁμοίως ἐνὸμίζον ὑπάρχειν.

speaking about the derivation sequence of the dimensions, one must also include the priority relations among pairs of opposite directions and say that the derivations are directional. The account of line, surface and body in the *Definitions* and the definitions of the dimensions Sextus attributes to the mathematicians register this development.<sup>41</sup>

### The relationship between body and dimensions

Having presented the definition of the mathematicians, Sextus next turns to the possible ways to account for the relationship between the dimensions and the body (367–75). At this point the difference between the incorporealist and corporealist standpoints is already of consequence. For the incorporealists, Sextus' problem will amount to the following question: what is the relationship between first principles and derivative entities? For the corporealists, by contrast, the question will concern the relationship between the ontologically basic primary entities and those items that figure in their conceptions. In so far as Sextus' primary targets should remain the incorporealists, the success or failure of this section will depend on whether his arguments will effectively be applicable to the way in which the corporealists would conceive the issue. In particular, Sextus' argument uses disjunctions as its premises at several levels: 'the relationship between body and dimensions is either A or B; if A, then it is either Ai or Aii'. Now it is *prima facie* conceivable that different options are available to express the relationship between primary and derivative entities on the one hand, and the relationship between primary entities and entities that are included in their conceptions, on the other. If so, it may well be possible that what is an exclusive and exhaustive disjunction in view of the first question is not so in view of the second, and thus the argument is valid in the first, but not in the second case. Moreover, as we shall see in a moment, Sextus' main candidate is that body is, in some way or other, a compound (ἄθροισμα) of the dimensions, and this is how the dimensions 'constitute' the body; in this respect the pivotal question will be what ἄθροισμα means and, furthermore, whether 'constitution' would have the same sense in the two contexts.

According to Sextus' initial dilemma, we can either conceive of the body (A) independently of its dimensions or (B) as an aggregate or

<sup>41</sup> This suggestion may add further substance to Isnardi Parente's conclusion (1992: 151) that Sextus' source for these chapters of the *Against the Physicists* should be granted the status of an important source of information on Hellenistic Neo-Pythagorean views.

compound (ἄθροισμα) of the three dimensions (*M* 9.368). We may readily grant to Sextus that (A) is a non-starter in view of the conception of body we are considering. The remaining discussion considers different alternatives for conceiving of body as an aggregate of the dimensions. In the first step we get a dichotomy in terms of the corporeal–incorporeal distinction: the dimensions are either (Bi) corporeal or (Bii) incorporeal. In the next step Sextus adds two further options for the ἄθροισμα view: either (Biii) the dimensions contained the logos of body in themselves before they formed a body, or (Biv) body supervenes on (or emerges from, ἐπισυνέβη) the complex of three dimensions. The whole discussion is cursory, and the presentation of the alternative views, never assigned to individual authors or schools, is rather crude. Moreover, there is no attempt to show either that the (A)–(B) disjunction is exhaustive, or that the four versions presented cover all the possible variants of (B), the ἄθροισμα view.

All the arguments against the different versions of the ἄθροισμα view turn on the corporeal–incorporeal dichotomy. (Bi), that the dimensions are corporeal, can quickly be disposed of because it immediately results in an infinite regress: if the dimensions taken individually are bodies, then each of them will have three dimensions as well.<sup>42</sup> (Bii), that the dimensions are incorporeal, may initially appear considerably more plausible – also because it is fair to assume that not only the incorporealists, but also most, if not all, the corporealists would consider the dimensions incorporeal.<sup>43</sup> Yet, Sextus summarily points out that the mere addition of incorporeals will never result in anything bodily. More precisely, he says that the conjunction or ‘coming together’ (συνέλευσις) of lines, which are incorporeal, and the compounding of points will never result in a solid and *resistant* body (στερεόν . . . σῶμα καὶ ἀντίτυπον), so also length, depths and breadth will not produce body (370). The addition of ἀντίτυπον, which makes it unambiguous that Sextus is speaking here about physical bodies, renders the argument problematic for both camps. The mathematicians may formulate an objection on the basis of the distinction between physical

<sup>42</sup> Note, however, that the parallel argument in *PH* 3 does not stop at establishing the regress but goes one step further: the body will then be composed of infinitely many bodies and must be of infinite size. Sextus applies the infinitely many-bodies argument specifically to surface at the very end of the chapter in *M* 9.435. Note that by the application of the doctrine of blending through and through, the Stoic can accept that a body is constituted by entities that are themselves bodies in such a way that the constituent bodies are spatially coextensive with each other and with the body they constitute: more bodies does not mean larger extension.

<sup>43</sup> Long & Sedley 1987: 301, followed tentatively by White 1992: ch. 7, develops the interpretation according to which limit entities fall completely outside the corporeal–incorporeal distinction and are members of the class of pure mental constructs.

bodies and geometrical solids.<sup>44</sup> The Stoics and the Epicureans may insist, on the other hand, that even if they grant that they need to give an account of the relationship between body and the dimensions in so far as their conception also includes reference to dimensions, they have never agreed that the dimensions are sufficient to provide a resistant physical body; their point was exactly that we need something further, namely resistance, to obtain physical body. The real targets of the argument could, however, be Sextus' 'mathematicians', that is those in the Neo-Pythagorean-Platonist tradition who, in the manner of the *Timaeus*, seek to generate also physical bodies from geometrical entities.

(Biii), that the dimensions contained the logos of body in themselves before they formed a body, and (Biv), that body supervenes on (or emerges from, ἐπισυνέβη) the complex of three dimensions, first appear to be more refined alternatives to the rigid corporeal-incorporeal dichotomy of (Bi) and (Bii), yet they are soon collapsed into them. Thus, it never becomes clear in exactly what way (Biii) differs from (Bi). And even though (Biv) sounds promising in so far as the term 'emerged' (ἐπισυνέβη) is indeed sometimes used to describe the way in which physical objects are derived from mathematical entities,<sup>45</sup> it also becomes reduced to the corporeal-incorporeal dichotomy in a rather mechanical way. In this case, Sextus first assumes, reasonably, that the 'supervenience' view posits incorporeal dimensions but then asks what 'happens' to the dimensions when they come together to form a body. If they remain incorporeal, we are back to (Bii): incorporeal entities that remain incorporeal cannot deliver a (physical) body. If, on the other hand, one wants to claim that the dimensions *become* corporeal in their conjunction, one needs to accept that they have already been corporeal from the start, because only bodies can undergo qualitative change (μεταβολή), and becoming corporeal is assumed to be such a change. Now, I am not suggesting that those who formulated, or could find attractive, the ἐπισυνέβη view had a full story about supervenience or emergence, but it is fairly clear that Sextus does not block all the routes that could be available to these thinkers. Sextus' approach in formulating the dilemma is acceptable in so far as it may legitimately be asked whether anything 'happens' to the lower-level constituents when the higher-level entity emerges.<sup>46</sup> Yet, he does not seem to allow for instance

<sup>44</sup> Cf. n. 24 above, with reference to Mueller 1982: 77.

<sup>45</sup> Cf. e.g. Alexander of Aphrodisias, in *Metaph.* 75.2 commenting on the way in which numbers, for the Pythagoreans, are supposed to be causes of the physical cosmos.

<sup>46</sup> For a contemporary formulation in which the lower-level entities undergo a change, cf. Paul Humphreys' conception of emergence as 'fusion', Humphreys 1997.

that the first prong of the ἐπισυνέβη view may differ from (Bii): that there can be other, more sophisticated, ways to conceive the relationship between the static constituents and the composite entity. He does not even employ puzzles he raises elsewhere about the generation of a composite entity: how can a further, additional thing come to be from a combination of components (cf. e.g. *M* 10.338)?

The most problematic part of Sextus' argument is however his initial dichotomy: if body is conceived in terms of dimensions, it will be conceived as an ἄθροισμα, aggregate, of the dimensions. What is common to the different variants of this view is that, in accordance with 'the mathematicians' incorporealism', but in contrast with the fundamental tenet of the corporealists, these conceptions treat the dimensions as ontologically prior to bodies. The underlying assumption seems to be that body is generated from the 'coming together' or conjunction of the independently existing dimensions.

This general assumption will certainly be inadmissible for the corporealists. Epicurus, for one, is at pains to work out an alternative to this picture by explicitly refusing to conceive the relevant relationship in terms of ἄθροισμα. The key text is a difficult passage in the *Letter to Herodotus* in which Epicurus discusses the relationship between bodies and their permanent attributes (*Ep. Hdt.* 68–70). However, Epicurus does not refer to dimensions in this context but mentions shape, colour, size and weight (keeping the list open). Now, the role he assigns to permanent attributes is the same as the role of dimensions in the alternative conception of body under scrutiny in Sextus' text: they are necessary ingredients of the conception of body (ὦν ἄνευ σώμα οὐ δύνατον νοεῖσθαι) and the body is in a way a complex of these. That Sextus, too, recognizes the parallel is shown by the fact that in describing the relationship Epicurus posits between body and size, shape and resistance in his list of conceptions of body in *M* 1.21 he uses the same language that he uses now for describing the relationship between body and dimensions: he says that according to the first conception of Epicurus, body is a conjunction by aggregation (σύνοδος . . . κατὰ ἄθροισμόν) of size, shape and resistance.<sup>47</sup>

Now, Epicurus explicitly discards some of the assumptions used in Sextus' argument. He makes it clear, first, that the items listed in the conception of body are not some incorporeals that would exist on their

<sup>47</sup> At the very end of the chapter on body, Sextus will consider a version of the Epicurean definition in terms of the permanent attributes and there he phrases it in terms of the ἄθροος that figures in Epicurus' original text.

own, independently of the body. He then argues that the nature of the body is a complex (ἄθροον) of the permanent properties, but not in the way that a larger body is an aggregate (ἄθροισμα) of its bodily constituents, atoms or smaller component parts.<sup>48</sup> We can on, the other hand, distinguish these constitutive properties by a special way of the mental operation of focusing (ἐπιβολή), which does not mean that what we can focus on in these ways can be separated from the complex conception of the body.<sup>49</sup> A body can be conceptually analysed into these items, the complex of which provides us with a grasp of the nature of body. Body, however, is not constituted by them in the sense that body is not generated by somehow putting together these items, as they were material parts. The way in which Epicurus speaks about the relationship between body and permanent attributes is clearly applicable also to the relationship between body and dimensions. Moreover, there are good reasons to think that, notwithstanding all the doctrinal differences about the ontology and nature of limit entities, both Aristotle and the Stoics<sup>50</sup> would follow roughly the same route. They would agree that although body can be analysed into dimensions by a mental operation, it does not mean either that the dimensions arrived at in these ways can be conceived independently of body, or that they would exist independently of body so that the dimensions would be generative of body in the way that Sextus' presentation appears to assume. Thus they could actually all agree with Sextus that no version of the ἄθροισμα view will describe the relationship between body and dimensions, yet they will object that this is not the only available way in which to conceive this relationship. Indeed, Sextus' arguments could well serve the corporealists in their polemics against the incorporealists and may ultimately go back to such contexts.

<sup>48</sup> The emphasis here is on the fact that the physical constituents also have magnitude – and are hence bodies – but are smaller than the aggregate. No such relationship holds between the body and its permanent properties.

<sup>49</sup> οὐθ' ὡς ἕτερ' ἄττα προσυπάρχοντα τούτῳ ἀσώματα οὐθ' ὡς μόρια τούτων, ἀλλ' ὡς τὸ ὅλον σῶμα καθόλου μὲν <ἐκ> τούτων πάντων τὴν ἑαυτοῦ φύσιν ἔχον αἰδίον οὐχ οἷόν τε εἶναι, συμπεφερημένον ὥσπερ ὅταν ἐξ αὐτῶν τῶν ὀγκῶν μείζον ἄθροισμα συστήῃ ἥτοι τῶν πρώτων ἢ τῶν τοῦ ὅλου μεγεθῶν τοῦδ' εἰς τινος ἐλαττόνων, ἀλλὰ μόνον ὡς λέγω ἐκ τούτων ἀπάντων τὴν ἑαυτοῦ φύσιν ἔχον αἰδίον. καὶ ἐπιβολὰς μὲν ἔχοντα ἰδίας πάντα ταῦτα ἐστι καὶ διαλήψεις, συμπαρακολουθοῦντος δὲ τοῦ ἀθρόου καὶ οὐθαμῇ ἀποσχιζομένου, ἀλλὰ κατὰ τὴν ἀθρόαν ἔννοιαν τοῦ σώματος κατηγορίαν εἰληφότος. The text is exceedingly difficult and I do not claim to understand it in every detail. In the main lines I follow the interpretation and construal suggested in Long & Sedley 1987: fr. 7B (with interpretation in vol. 1, 36–7 and additional notes in vol. II, 28), possibly with the exception of the last clause quoted.

<sup>50</sup> Cf. Proclus, in *Euc.* 89.15–18, according to which the limit entities exist only κατ' ἐπίνοιαν, contradicted by Posidonius (Diogenes Laertius 7.135), according to whom they exist also κατ' ὑπόστασιν.



I think it is instructive to consider at this point how Descartes treats the relationship between body and dimensions. He comes back to this question time and again, but a brief passage from Rule Twelve could function as a direct response to Sextus' puzzles:

If, for example, we consider some body which has extension and shape, we shall indeed admit that, with respect to the thing itself, it is one single and simple entity. For, viewed in that way, it cannot be said to be a composite made up of corporeal nature, extension and shape, since these constituents have never existed in isolation from each other. Yet with respect to our intellect, we call it a composite made up of these three natures, because we understood each of them separately before we were in a position to judge that the three of them are encountered at the same time in one and the same subject. That is why, since we are concerned here with things only in so far as they are perceived by the intellect, we term 'simple' only those things which we know so clearly and distinctly that they cannot be divided by the mind into others which are more distinctly known. Shape, extension and motion, etc. are of this sort; all the rest we conceive to be in a sense composed out of these. (AT 10.418 = CSM 1.44)

Descartes, like Epicurus, starts by emphasizing the different ways in which something can be considered a compound. He also stresses that the conceptual analysis by which we decompose body into items that constitute its nature – extensions, shape – does not deliver ontologically more basic and separable entities. The distinction between body and extension is achieved by a mental operation of the intellect which 'alone has the ability to separate out abstract entities of this sort' (AT 10.444 = CSM 1.60). But in the next move he also has to stress that the items that are the outcome of the conceptual analysis, are 'simple natures' that we cannot analyse further. Decomposition even in this sense has to stop here. As he says also in his letter to Princess Elizabeth (21 May 1643, AT 3.665 = CSM 3.218), extension is a 'primitive notion'. Sextus, however, moves on and seeks to bring the analysis further by asking what length, taken to be the primary extension, is. This move, in itself, is unobjectionable in so far as neither Greek mathematical thinking, nor the relevant philosophical theories block such a step by introducing the conception of primitive notions.

### **The existence of dimensions: length and line**

At *M* 9.375 Sextus turns to his second main set of arguments, which extends to 433 and thus takes up the larger part of the chapter. The proclaimed general aim of this long section is to present arguments for

the non-existence of body through arguments for the non-existence of dimensions: if we conceive of body as that which is constituted by length, breadth and depth, and it turns out that length, breadth and depth do not exist because no conception of them is forthcoming, then body – so conceived – cannot exist either. The argument thus combines conceptual and ontological considerations at more than one level.<sup>51</sup>

The fact that these arguments concentrating on the existence of dimensions are separated from the previous ones that focus on the way in which dimensions can constitute the body is an advantage of *M* 9 compared with *PH* 3, where these questions are treated together in a somewhat jumbled way. In *M* 3 these two arguments, formulated in the very same terms as in our text, are separated and follow each other in the order we have in *M* 9. It is important to emphasize, however, that in *M* 3 these two arguments come after the discussion of point, line and surface, the joint discussion of line and surface, the discussion of straight line, and so forth. The argument about the existence of dimensions is presented as a brief addition, taking up only six lines, before Sextus concludes in *M* 3.92 that the *archai* of the geometers are unfounded. As we shall see, in *M* 9 all the arguments about the fundamental geometrical notions not only follow the argument which makes the existence of body dependent on the existence of dimensions but are subordinated to it. The reorganization of the material is clearly motivated by the fact that in *M* 9 Sextus approaches the fundamental geometrical notions in the perspective of his general examination of conceptions of body.

Even if the argument about the existence of dimensions is distinguished from the argument that discusses the different ways in which the three dimensions may constitute body, it takes as its tacit premise that there is a part–whole relationship between body and the dimensions. The parallel argument in *PH* 3 (which includes resistance (ἀντισυπία)) makes the point explicit: ‘Now without length and breadth and depth and resistance, nothing will be a body; but if a body is these items, then anyone who shows that they are unreal will do away with bodies too (for wholes are done away together with all their parts)’ (*PH* 3.40, trans. Annas & Barnes 1994). Thus, the task now is ‘to do away’ with the dimensions that constitute body.

Sextus immediately translates the question of the existence of dimensions into the question of the existence of fundamental geometrical

<sup>51</sup> Cf. the discussion by Bobzien, in this volume (pp. 276–92), about the problematic nature of such moves.

objects. The entire later development between 375 and 433 is ultimately dependent on this move. The crucial sentences run as follows:

... nothing is length, breadth and depths, as we shall establish; therefore body does not exist. *For length does not exist, since this is the greatest dimension of the body which is called 'line' by the mathematicians*, and the line is a point which has flowed, and the point is a partless and unextended sign (σημεῖον). Hence, if nothing is a partless and unextended sign, there will not be line either, and since there is no line, there is no length either, and since there is no length, body will not subsist (ὑποστήσεται) either. (375–6; my emphasis)

The key step comes in the phrase I have emphasized; apparently it is the identification of length and line that provides the basis for the elimination of dimensions through the elimination of limit entities. That the non-existence of length follows from the non-existence of line – which in turn follows from the non-existence of point – is reiterated a little later at 379 as a coda to the short arguments for the inconceivability of point. And when Sextus next turns to the arguments for the inconceivability of line, he says once again that one can argue for the non-existence of length by establishing that line does not exist, because length is line (ἦν γὰρ τὸ μῆκος γραμμή, 380). The same conclusion is repeated at the end of the section dealing with the derivation of line from point (389).

Remarkably, this explicit and emphatic identification of length and line is absent from *M* 3. We may perhaps interpret it as a clear recognition from Sextus that in the entire long subsequent section he is still focusing on the same conception of body, expressed in terms of dimensions, and he must therefore first establish that the dimensions are dependent on, or indeed identical with, the fundamental geometrical entities. This move, on the other hand, may seriously threaten the efficacy of Sextus' strategy. If the dogmatist opponent refuses to accept this identification, the arguments for the inconceivability of point, line and surface will not threaten his conception of body in terms of dimensions. Disagreeing with the Platonists, a corporealist dogmatist may accept that body is to be conceived of in terms of three-dimensional extension (with or without resistance) without nonetheless accepting that body is in any way constituted by points and lines or that the dimensions should be conceived of in terms of fundamental geometrical notions.

It is thus highly significant that Sextus immediately translates the dimensions into limit entities as conceived of by the mathematicians, and apparently does not allow for possible alternatives formulated by the corporealists. The consequence of this identification is that once Sextus

disposes of the various mathematical conceptions of limit entities to his own satisfaction, he considers the job of eliminating body – also as conceived of by the corporealists – done. Yet the physicists could, and did, come up with other conceptions of limit entities; for instance, the Stoics could claim that limits have depth, albeit infinitesimal depth, whereas the Epicureans taught that limit entities will have a definite three-dimensional magnitude. Thus they can readily agree with Sextus that the mathematical conception of limit entities is flawed, or that limits as conceived of by the mathematicians are not applicable to the description of physical reality, without conceding that all this threatens the conception of physical body as three-dimensionally extended (with or without resistance).<sup>52</sup> Indeed, it is highly probable that many of the subsequent arguments against the fundamental geometrical notions originate in Stoic and especially Epicurean texts.<sup>53</sup> At this point the distinction between geometrical and physical bodies also becomes crucial; for it may be much easier to argue that geometrical body stands or falls together with other fundamental geometrical entities, point, line and surface, so that the conceivability and ontology of these geometrical objects come in a package, than to accept that physical body is also part of the package.

It is important to note, moreover, that *PH* 3 offers a further possibility, namely that surfaces and lines are ‘observed only in connection with so-called bodies’ (μόνον περὶ τοῖς λεγομένοις σώμασι θεωρεῖσθαι, *PH* 3.41, trans. Annas & Barnes), which would reverse the priority relationship between line and body. This option, corresponding to the focus on the incorporealist mathematicians, is not entertained here or elsewhere in our chapter; an omission that creates yet another momentous lacuna in the argument of *M* 9.

Let us see then how Sextus justifies the identification of length and line. In a first step he defines length as the greatest dimension of the body. This, in itself, does not seem to be problematic. If we take a three-dimensional object the actual position of which is not fixed, we may designate the longest dimension of it as its length. It is plausible to say that we measure the length of a pencil or a couch always along its largest extension irrespective of the position of the object. This conception is, however, clearly in contrast with the position-based definition of length

<sup>52</sup> I cannot enter here into the discussion of the ontological status of limits, point, line and surface according to the different parties concerned. For an instructive treatment of the relevant Aristotelian, Epicurean and Stoic views, see White 1992.

<sup>53</sup> Cf. Dye & Vitrac 2009.

(‘length is that which is from above to below’) that Sextus used in his initial presentation that we considered earlier. We have also seen, on the other hand, that Stobaeus lists exactly these two as alternative conceptions of length.<sup>54</sup> Stobaeus, however, hastens to point out that that conception of dimensions which defines length as the largest dimension is problematic in the case of bodies such as a sphere: as a body it must have length together with breadth and depth, yet none of these is larger than the other two. Nonetheless, Simplicius in his commentary on Aristotle’s *De Caelo* 2.2 emphasizes that ‘length is said to be the greatest dimension in *every* body’ to supply a premise for his explanation of Aristotle’s argument for the claim that the length of the spherical cosmos is the axis joining the two poles.<sup>55</sup>

Yet even if we accept the somewhat counterintuitive claim that in the case of every body one of the dimensions is greater than the others, and that this is the length of the body (or in the case of a sphere, we can designate in a non-arbitrary way one of the diameters as the length of the sphere), how can this motivate the identification of length and line as Sextus’ formulation would require it? The background of the identification of length and line, I would suggest, lies elsewhere and is closely connected to the developments I have tried to reconstruct above in discussing the directionality of dimensions. If it is true that length is prior to the other dimensions (as Aristotle also argues in *De Caelo* 2.2 and *IA* 2–7) and, on the other hand, line is the first dimension which is generated from the point, we can say that when the point has flowed, we get the first dimension of the future body, namely its length. And in so far as in the next phase of the generation of dimensions we get surface from line, and breadth is the second dimension of the body, surface can be treated as the breadth of the body, or, alternatively, surface is length and breadth. Yet this conception of length is not the same as the one which identifies it with the *greatest* dimension of the body. If you take the generative view of the body, there is nothing, as far as I can see, that could guarantee that what is generated first is also its quantitatively greatest dimension. Moreover, the claim that length is the greatest dimension indicates that we are not dealing with indeterminate extensions. Thus, I think, Sextus’ move would be much better motivated if he had said ‘For length does not exist, since this is the *first* dimension of the body which is called “line” by the

<sup>54</sup> Cf. above, p. 143.

<sup>55</sup> Simplicius, in *Cael.* 390.2–6: μήκος γὰρ ἐν πᾶσι τοῖς σώμασι λέγεται τὸ μέγιστον ἐν αὐτοῖς δίδωσθαι.

mathematicians.’ There seems to be a confusion here between the two conceptions of dimension that Stobaeus duly distinguishes.

When formulated in that way, the identification of line and length may moreover reveal a further confusion between ‘having length’ and ‘being length’. Length appears together with line because the line already has length. But this does not mean that line is length or length is line. The identification nonetheless seems to lurk also in the Euclidean definition of line. For the Euclidean definition states not merely that ‘line is that which is extended in one dimension’, as Nicomachus will later say (*Ar.* 2.6.4), or that ‘line is what has length only’ but that it is ‘breadthless length’ (*Def.* 1.2). Compare the definition of surface: ‘A surface is that which *has* length and breadth only’ (*Def.* 1.5). Note also the priority relations among dimensions seem to be presupposed in these definitions as well.<sup>56</sup>

### Point, line and surface

As we have seen, Sextus in the programmatic sentences of 375–6 makes the existence of body ultimately dependent on the existence of point. If the conditional in the last sentence in the passage quoted above holds (‘if nothing is a partless and unextended sign, there will not be line either, and since there is no line, there is no length either, and since there is no length, body will not subsist either’), it should in theory be sufficient to argue merely for the non-existence of point. However, presenting all the arguments included also in *Against the Geometers*, Sextus systematically goes through the available conceptions of point, line and surface. Surely, those conceptions of line that derive it from point (‘line is a point which has flowed’ and ‘line is a row of points’) are also relevant in so far as they substantiate the claim that line depends on point. Yet Sextus does not stop there but examines further conceptions of line, and then surface, and examines whether they are consistent with the mathematicians’ ‘theorems’.<sup>57</sup> Now, this overall strategy is clearly relevant in the context of *Against the Geometers*. The notions in question form the basis of geometry as a *technē*, which builds its whole edifice on these; this is why it is

<sup>56</sup> Hero, *Def.* 2.1 lists both definitions. Note that μήκος in specific geometrical contexts, moreover, can be used synonymously with εὐθεία. See Mugler 1958: 293 s.v. μήκος. It is also remarkable that Aristotle in some key passages uses the word μήκος where one would rather expect γραμμή. See e.g. *Metaph.* 13.3.1078a8 and *Ph.* 2.2.193b24–6.

<sup>57</sup> The examination of surface (430–6) may actually be taken as independent from the project announced in 375–6 in so far as it primarily concentrates on the question of what happens to limits when two bodies touch.

informative to relate these conceptions to further, more complex statements, operations and notions used by the same *technē*. A *technē* can effectively be destroyed by showing that its fundamental notions, as well as its more complex operations, turn out to be incoherent. In such a context, this kind of overkill can also be a powerful rhetorical tool. Indeed, for destroying geometry as a *technē*, one does not need to show that its assumed fundamental objects do not exist; it is sufficient to show that a *technē* is incapable of construing a coherent conception of them.

Prima facie, the whole exercise is much less relevant in the context of *Against the Physicists*, where the primary target should still be the first principles of the dogmatic physicists. There are cases, however, where this tactic furnishes considerations that turn out to be relevant in this context as well. Discussing various alternative conceptions of the different limit entities may deliver such formulations as could be accepted also by the dogmatist physicists. So along with the two definitions of surface that would surely be rejected by Epicureans and Stoics alike – that ‘surface is the line which has flowed’ and ‘surface is breadth without depth’ – we are given a third definition, ‘surface is the limit of body’, which could be accepted by them. Similarly, the examination of the question of what happens to limit entities when two bodies touch (430–6) is relevant in the context of *Against the Physicists* as well. The impression we get, especially in view of the close correspondence with *Against the Geometers*, is that Sextus keeps concentrating on the geometers, casts his net far and wide, and then some of his catch turns out to be material to his present agenda, without his explicitly discriminating between what is and what is not relevant.

The overall structure of the examination of the basic geometrical objects is as follows. First comes a relatively brief discussion of point conceived as a partless and unextended sign (377–8). In the next step Sextus turns to line, starting with those conceptions of it that derive line from point (380–8). He wraps up this section with an interim conclusion stating that line cannot be conceived in relation to point, therefore body does not exist (389). Next, he turns to doing away with line directly (προηγούμενως), according to its own conception (390). The direct attack on line concentrates primarily on the definition that we know from Euclid (‘Line is breadthless length’, Eucl. Def. 1.2)<sup>58</sup> but also includes a short section on line conceived as the limit of surface (cf. Eucl. Def. 1.6). At 418

<sup>58</sup> Dye & Vitrac 2009: 174 point out very reasonably that from the presence of definitions identical to those in Euclid one should not infer that Sextus consulted Euclid’s *Elements*, or for that matter any other more technical geometrical treatises, or that his primary targets were these works and authors.

Sextus formally announces the end of the direct examination of limit entities and body, but he appends a longish section in which he discusses the *aporiai* that result when one relates the conceptions of the fundamental geometrical entities to geometrical hypotheses and theorems about more complex, derivative geometrical objects (circle, straight line, parallel lines, square, cylinder, etc., 419–30). For once, Sextus makes explicit that this section has no direct bearing on the conception of body under investigation,<sup>59</sup> but he claims that it provides further evidence to show the absurdity and inconsistency of the geometers' conceptions. Finally, he completes the programme with a section on surface (430–6). It is formally connected to the previous discussion of line and starts with the thesis that the surface is generated from line, but it concentrates rather on the puzzles stemming from treating surface, understood as a two-dimensional entity, as the limit of body. Sextus proclaims the end of the examinations concerning the conceptions of basic geometric objects and the related theorems at 437. As almost all the arguments contained in this section are identical with the ones in *Against the Geometers* and hence were discussed by Ian Mueller, and more extensively by Wolfgang Freytag, I shall treat this section briefly, primarily concentrating on those points that reveal the articulation of the arguments and their place in the overall argumentative strategy of the chapter.

Collecting the different conceptions of the fundamental geometrical entities, there appear to be three ways to give an account of them:<sup>60</sup>

- (i) by derivation: the  $n+1$ -dimensional object is the  $n$ -dimensional object which has flowed: 'line is the point which has flowed' and 'surface is the line which has flowed'.
- (ii) as a limit: the  $n$ -dimensional object is the limit of the  $n+1$ -dimensional object: 'point is the limit of line', 'line is the limit of surface' and 'surface is the limit of body'.
- (iii) by privation: the  $n$ -dimensional object is an extension that does not have the extension characteristic of  $n+1$ -dimensional objects: 'point is a partless and unextended sign', 'line is breadthless length' and 'surface is breadth without depth'.

An important difference between (i) and (ii) is whether we take the lower- or the higher-dimensional object as primary: (ii) assumes that  $n$ -dimensional entities belong to  $n+1$ -dimensional objects, whereas (i) takes it that  $n+1$ -dimensional entities can be generated from  $n$ -dimensional entities;

<sup>59</sup> For this reason I shall not discuss this section.

<sup>60</sup> For a somewhat different formulation of the three types of definition, see Freytag 1995: 162.



obviously, (ii) will be more palatable to the corporealists. Sextus in *M* 3.19 seems to treat the genetic account as primary from which the other accounts somehow follow (παρό).<sup>61</sup> We shall also see that Sextus apparently takes the view according to which the  $n+1$ -dimensional entity is a multitude of  $n$ -dimensional entities as a possible interpretation of the derivation by ‘flowing’. However, he does not add to the list a fourth type of account, according to which we define an entity as the origin or beginning of the next entity in the derivation sequence (although, as we shall see in a moment, he considers that it is essential to point that it is generative of the line). There is evidence that such definitions were also current in the Pythagorean tradition. Aristotle mentions as an example the definition according to which point is the *archē* of line (*Top.* 108b31–2) and it has been plausibly argued that he takes the example from Archytas.<sup>62</sup> Nicomachus also uses this definition (*Ar.* 2.7).

### Point

Even though the way in which Sextus introduces his overall strategy suggests that the examination of point will carry much of the weight of the argument, the point is dealt with very briefly (377–8). The section on point in *Against the Geometers* is considerably longer (*M* 3.22–8). According to Sextus’ initial dilemma, the point is either corporeal or incorporeal. As it does not satisfy the criteria of three-dimensionality, the point cannot be a body. Sextus is thus using the conception under investigation as a premise in the argument – this is fine of course in so far as he wants to show the internal inconsistency of the conception. The argument to the effect that the point cannot be incorporeal uses as its premise that the point is generative of the line. Yet, if the point is incorporeal, it cannot function as a source of generation for further entities, because generation presupposes contact (θίξις) and only something corporeal can be in contact.<sup>63</sup>

<sup>61</sup> The list of definitions considered by Sextus in Mueller 1982: 73–4 is not complete.

<sup>62</sup> Huffman 2005: 499–503.

<sup>63</sup> It is notable that Sextus does not base his case on the Aristotelian argument from *Ph.* 6.1 that what is partless cannot be in contact (ἄπτεται) but states that incorporeals cannot be in contact. From the same assumption we can deduce that lines and surfaces, which have parts but are incorporeal, cannot be in contact either. For Stoic parallels, cf. e.g. Nemesius 81.8 = *SVF* 2.790 (part): οὐδὲ γὰρ ἐφάπτεται σώματος ἀσώματος. For the view that all causal interaction presupposes contact, see *M* 9.258. In *M* 10.325 Sextus says more specifically that generation and perishing presupposes contact. See also e.g. Plutarch, *Comm. Not.* 1080E about Chrysippus’ insistence on this point. For a more detailed discussion of why incorporeals cannot be in contact, see Freytag 1995: 183–202; 4.2.2 and 4.2.3 on why contact is needed, according to Sextus, for generation.

The whole discussion turns on the expectation that the point is that from which the other dimensions, and ultimately the body will be built up. Sextus thus does not consider whether the notion of the point as a partless and unextended entity is coherent in itself, and he does not exploit the numerous puzzles, mentioned also by Aristotle, that may arise from such a conception. Similarly, taking the point to be incorporeal may be coherent in itself, but it will not do for our purposes, because then it will not be able to produce line. A discussion of that conception which takes point to be a limit entity – one which receives a treatment also in *M* 3 – is missing too.

### *Line*

#### *Derivation from point*

Sextus next turns to line, and the critical examination of the different conceptions of line will take up the larger part of the remainder of the chapter. Remember that line is crucial since this is what Sextus has identified with length, and length is supposed to be essential for the constitution of body, being its primary dimension. First come those conceptions that derive line from point. The discussion of the relationship between point and line had had of course a long history by that time, starting at least with Archytas, and becoming an especially important issue among the disciples of Plato. Part of the problem is the old Zenonian one: how can something that has magnitude be constituted by things that have no magnitude? The other part of the problem is the topological relationship between points that are supposed to be constitutive of a continuous magnitude: how can we imagine the relationship between two neighbouring points? It is also important to see, as has often been emphasized, that these questions cannot be adequately treated without a fairly advanced set-theoretical apparatus developed in the second half of the nineteenth century.<sup>64</sup>

Because the problems with the different conceptions of line are so apparent, Sextus can be generous and employ the customary sceptic strategy: let us ignore that we have already done away with point, and hypothetically grant that it exists; even so the line will not exist because it is impossible to derive it from point. According to the old tag that Sextus constantly ascribes to the mathematicians, we obtain the line when ‘the point has flowed’ (στίγμη ἐρρηκυῖα, 376); alternatively the line is the ‘flux of sign’ (ῥύσις

<sup>64</sup> Cf. e.g. White 1992: chs. 1 and 4, esp. 179–85; Freytag 1995: chs. 2 and 4.

σημείου, 380).<sup>65</sup> The ῥύσις doctrine is actually the only mathematical view to which Sextus attaches a name, if not in *M* 9, at least in *M* 3. At *M* 3.28 Sextus reports that Eratosthenes, in order to ward off attacks, used to say that the point does not have a place, neither does it measure the interval of the line, but it produces the line by flowing (ῥύεν δὲ ποιεῖ τὴν γραμμὴν). The attribution to Eratosthenes is confirmed by a parallel report by Theon of Smyrna in a context where he explicitly discusses Eratosthenes' views: 'As to the point, it produces the line neither by multiplication, nor by addition, but by a continuous movement, just as the line produces the surface, and the surface the solid' (*Exp.* 31, 83.21–4 Hiller).<sup>66</sup>

Somewhat curiously, Sextus seems to consider that all those views that derive the line from the point can be described by the terms of 'flux' (ῥύσις) and 'flowing' (ἔρρηκνῆ), so that these terms cover both those views (A) that obtain the line from a single point and those (B) that conceive the line as a set of points in a row. Now (B) not only is an unintuitive interpretation of the labels but is the group of views in contradistinction to which Eratosthenes apparently put forward the ῥύσις doctrine in the first place. Indeed, other specifics of Eratosthenes' conception, most notably that the point does not have a place, are also ignored in Sextus' arguments which are based on the assumption that 'flowing' can only be conceived in physical terms.

The distinction between (A) and (B) constitutes the first dilemma, which then leads to several further levels of dilemmas. Sextus first deals with the less probable option at each level and then constructs a dilemma from the other horn. (A) is thus first divided into: (A1) the point remains at the same place; and (A2) the point moves from one place to another. (A1) is implausible both because it does not deliver a line – a stationary point will remain a point – and because why would we then say that the point flows? But (A2), the *prima facie* more plausible candidate, needs interpretation. When the point moves, does it (A2i) occupy a new place by leaving its previous place behind, or does it (A2ii) lay hold of the new place without giving up its first place? Again, (A2i) will leave us with a single moving point – Sextus does not even need to indulge in the difficulties that may be raised about the motion of a partless entity<sup>67</sup> and by whether something which is not a body and has no extension can have a place.<sup>68</sup>

<sup>65</sup> On the origins of this conception, see e.g. Isnardi Parente 1992: 120–68. She defends the view according to which the conception may ultimately go back to Archytas.

<sup>66</sup> Cf. Freytag 1995 and Dye & Vitrac 2009: 185.

<sup>67</sup> Cf. Aristotle, *Ph.* 6.10.240b8–241a6.

<sup>68</sup> This problem arises from Aristotle's discussion of place in *Ph.* 4.1–5, according to which only a moving *body* can be in a place. Eratosthenes' insistence that the point does not have a place might be

If one assumes that the point can flow and that it has a place, (A2ii) might be the most intuitive interpretation of the definition; and it is at this point that we can expect the argument to become more interesting. Sextus, however, formulates this option in a rather perplexing way. According to the next level of dilemmas, when the point lays hold of a new place it becomes ‘coextensive by stretching out’ (ἀντιπαρεκτείνομαι).<sup>69</sup> As far as I am aware, this notion is not used in technical mathematical contexts and evinces once again Sextus’ fundamentally physicalist interpretation that treats point as a body. The rare term used here belongs to the Stoic technical vocabulary to designate the way in which two bodies interpenetrate each other in *krasis* and thus take up the same extension; in Sextus’ presentation the same relationship would hold between point and its place.

According to Sextus’ dilemma the point ‘stretches out’ either (A2iia) to an indivisible place or (A2iib) to a divisible place. Once again, the first option is implausible: what is coextensive with an indivisible place is still a point. Now what about (A2iib)? For, presumably, this is what the derivation is supposed to mean: the indivisible point has become the first divisible magnitude, the line. Sextus’ objection is double. On the one hand, he points out, reasonably enough, that the resulting entity can no longer be a point in so far as it is divisible. The basis of this objection must be that the conception under investigation assumes that the resulting line is not a qualitatively different entity, but still a point – a point which has flowed.<sup>70</sup> Besides, the change described by the verb ‘to flow’ does not seem to refer to a process of generation, but rather to locomotion or growth.

Sextus nonetheless adds another objection, according to which, in so far as it is divisible, it must have parts, whereas that which has parts is a body (τὸ δὲ ἔχον μέρη σῶμά ἐστιν, 385) – so the point must be a body, which is unacceptable for those who hold this conception: it is not extended in three dimensions. So Sextus does not merely point out that the conclusion according to which the point has parts is incompatible with the definition according to which the point is partless but introduces the further premise stating that that which has parts is a body. Perhaps we can

a recognition of Aristotle’s point. On how the ancient commentators tried to make this claim compatible with the discussion of contact in *Ph.* 5.3, which presupposes that limit entities also have place, see Furley 1982 and White 1992: 24–8.

<sup>69</sup> Cf. *SVF* 2.471; 472 and 473 from Alex. *Mixt.* and Arius Didymus. This otherwise rare word occurs in Sextus ten times, twice in the chapter on part and whole (*M* 9.262–3), three times in our passage, which is exactly paralleled in *M* 3, and once in the chapter on time (*M* 10.225).

<sup>70</sup> Freytag 1995: 175–6 argues that Sextus’ fundamental objection is that one cannot identify the moment when the generation of line from point could take place.

derive this premise from the discussion of part and whole: that which has parts is a whole, but only a body is a whole (cf. *M* 9.332 and 334 for the Stoic and Peripatetic acceptance of this statement). We have seen above that the final stage of the discussion about the conception of point depends not on the partlessness of point, but on the corporeal–incorporeal distinction and can therefore be extended to line and surface: it implies that not only point but line and surface cannot be in contact either. Although Sextus does not draw this conclusion, in the present case the last premise implies that – in so far as they are not bodies – the line and the surface cannot have parts either. Partlessness ceases to be a distinctive feature of point.

Sextus now turns to (B): line is a multitude of points in a row (πολλὰ στοιχηδὸν κείμενα, 386). The argument turns on the question how the neighbouring points are spatially related. They are either (B1) divided by intervening spaces or (B2) touch one another. Again, (B1) is less plausible, because we have lost the continuity of the line. (B2), in turn, is dealt with by a variant of Aristotle's dilemmas in *Ph.* 6.1.231a21–b6: when points touch, do they touch whole by whole, part by part, or part by whole? As we know from Plutarch (*Comm. Not.* 1080E), Chrysippus' chief objection against the advocates of indivisible magnitudes went along similar lines. One difference is that Aristotle simply points out that points, being partless, cannot touch part with part, whereas Sextus dwells on this issue at some length. He says that points should, on this conception, have distinguishable parts not only along the line – one by which they touch the previous point and one by which they touch the next point in the row – but also in the other directions as well. The line is imagined to lie on a surface so that each point constituting the line touches the underlying surface with a further part; and to have something above, so that the point has to have a fourth part by which it can touch the corresponding part of that thing. One may be struck by the literal-mindedness of the visual imagery: the points are supposed to touch the underlying surface as the pearls of a necklace touch the dressing table. Yet this elaboration reveals the denial that 'naked' lines can exist just on their own in something like abstract space: the line must have some environment and, if we suppose that the line is constituted of points, these points must have some topological relation not only to one another but also to the corresponding parts of the environment. Indeed, the whole section is characterized, once again, by strongly physicalist, corporealist assumptions. Point, line and surface are systematically treated as bodies, and then it is shown that they cannot be bodies: their parts are conceived as physical parts, whereas 'touch', as we have just seen, is portrayed as a physical contact between bodies.

The section is wrapped up by the conclusion that since it has been shown that there is no such thing as line, and we need line to conceive length, and length to conceive body, no such thing as body exists (389).

*Line is breadthless length*

This is the point where Sextus turns to abolishing the line directly (προηγούμενως) according to its own conception. The expression may simply refer to a distinction between different conceptions: he is now turning to that conception of line which does not relate it either to point or to surface<sup>71</sup> – so neither (i) nor (ii) but (iii) on the list above (see p. 159). We get a slightly stronger interpretation if we take the phrase to mean that Sextus will now attack line directly in the sense that the conception of line to be discussed is independent from the more specific doctrines of the mathematicians about the ontology and derivation sequence of geometrical entities. The conception in question – line is breadthless length – is thus not only a different one, but one that is less theory-laden and could be more widely accepted. The parallel use of προηγούμενως in M 10.189 offers some support for this construal.<sup>72</sup> Notably, this is also where Sextus starts to speak about ‘geometers’; up to this point he has spoken only about the ‘mathematicians’. The text does not make the relationship between the two designations explicit, but I find it tempting to think that, if the distinction is to carry any weight, then the geometers are those who do not need to be committed to the derivation sequence of geometrical objects. Indeed, none of the arguments of the subsequent section – where geometers are mentioned, and the coherence of their definitions and theorems is under attack – assumes the more robust metaphysics of the ‘mathematicians’.<sup>73</sup>

The conception at issue is of course the Euclidean definition of line (Def. I.2). Yet, as Sextus will also remind us, Aristotle had already formulated a defence of it; the definition and the controversies around it therefore must go back to pre-Euclidean times.

Sextus’ strategy consists in applying an empiricist epistemology to show that what is defined in this way is inconceivable. It is notable that Sextus concentrates the empiricist artillery on this definition of line and

<sup>71</sup> So Mueller 1982: 72. <sup>72</sup> Cf. Warren 2003: 314 and Bobzien, in this volume, p. 280.

<sup>73</sup> When he turns to the difficulties surrounding surface in M 9.430, Sextus refers to the derivation of surface from line by flowing, but he does not exploit any of the puzzles that may derive from this conception. Instead, he immediately turns to consider those difficulties which arise when we define surface as that which has two dimensions, having length and breadth only, and which takes it to be the limit of body. These latter are of course acceptable also for those who otherwise disagree with the derivation sequence view.

does not apply it to the point (as he does in *M* 3.22–8). Sextus first presents a general typology of different ways in which we conceive (νοεῖται *M* 9.393; ἐπινοεῖται *M* 3.40) a concept (τὸ ἐπινοούμενον *M* 9.393; τὸ νοούμενον *M* 3.40).<sup>74</sup> According to the first division, we form concepts either by direct encounter with things that are manifest, or by transference (μετάβασις) from them; the experience of manifest things is thus a precondition of concept formation. Putting to work his usual method, Sextus contends that line can be grasped in neither way.

One might think that it is not a central issue for the geometer whether or not a length without breadth is directly perceptible. Yet there is some evidence that there were authors also in the mathematical tradition who tried to claim that one-dimensional entities are available to direct perceptual experience by referring to, for example, ‘what divides illuminated regions from those in shadow’.<sup>75</sup> The purported direct perceptibility of such entities not only should ward off sceptical attacks, like the one we find in Sextus, but could also be directed against those empiricist physicists who, for different reasons, deny that one-dimensional limit entities have any reality in the physical world. Sextus, however, ignores such examples and finds it sufficient to assert that length is never perceived in itself, but always together with some measure of breadth.

Sextus then divides the other option, transference, into three ways of concept formation: according to resemblance (κατὰ ὁμοιότητα), composition (κατὰ ἐπισύνθεσιν) and proportionality (κατὰ ἀναλογίαν), this last one comprising diminution and increase. Once again, Sextus proposes that we cannot conceive length without breadth by any of these modes. The ultimate origin of this specific typology is unknown, but it closely corresponds to somewhat different lists attributed to the Epicureans and the Stoics respectively. First, it differs from the theory of concept formation that Diogenes Laertius ascribes to Epicurus only in that Epicurus does not subsume the three non-direct forms under ‘transference’ (μετάβασις).<sup>76</sup> What differentiates the non-direct modes is that in those cases there is some measure of contribution from reasoning. Diogenes attributes a similar, but more extensive, list to the Stoics (7.52–3), where we also find the examples of the Cyclops (increase) and the pygmy (diminution),

<sup>74</sup> Cf. also *M* 8.59–60. On this epistemological passage, see the fuller analysis in Mueller 1982: 78–81 and Freytag 1995: 1.3. See also Ierodiakonou, in this volume, pp. 123–4.

<sup>75</sup> Proclus, in *Euc.* 100.14–16. The claim is attributed to Apollonius by Heiberg; cf. also Hero, *Def.* 16.5–11.

<sup>76</sup> Diogenes Laertius 10.32: καὶ γὰρ καὶ ἐπίνοιαί πᾶσαι ἀπὸ τῶν αἰσθήσεων γεγόνασι κατὰ τε περίπτωσιν καὶ ἀναλογίαν καὶ ὁμοιότητα καὶ σύνθεσιν.

mentioned by Sextus. The term *μετάβασις* does figure on that list, but not as a more general concept covering resemblance, composition and proportionality. It is briefly mentioned as the specific way in which things such as *lekta* and place, and so presumably also void and time, are conceived. So if one, apparently like Plutarch (*Comm. Not.* 1080E), thinks that limit entities belong in the category of incorporeals, one could speculate that line would be conceived by *μετάβασις*, but still it would not be identical with any of the modes examined by Sextus.<sup>77</sup>

Sextus formulates his objections to two of the three forms of *μετάβασις* analogously. He points out that all three require that there is some entity such that it is directly available to perceptual experience and itself shows the relevant kind of property that the entity to be conceived by transference also possesses. Thus, we can conceive of a giant by increase or a pygmy by diminution, because human beings that are directly perceptible also have size. Yet we always perceive length with some quantity of breadth (as Sextus has already proclaimed in blocking the first horn of his original dilemma), so by increase or diminution we could conceive of lengths with larger or smaller breadths, but not without breadth. Similarly, there is no resemblance in the relevant way between a perceivable length with *some* breadth and a length *without* breadth. The remaining way, composition, is even easier to dispose of: for what manifest thing should be added to what other manifest thing – as we add horse and man to arrive at the conception of a centaur – to obtain the conception of a breadthless length?

Although Sextus does not mention them in his original classification, he adds and discusses a little later two further possible ways of concept formation: intensification or ‘stretching’ (*κατὰ ἐπίτασιν*, 403–6) and privation (*κατὰ στέρησιν*, 407). Such later additions are always worrying. The original typology had the air of an exhaustive list – Sextus even added that ‘there being this many ways of conceiving, if a length without breadth is conceived, it should be conceived in one of these ways’ (396) – but then the reader has to learn that other options are also available and may wonder whether even further possibilities, not considered by Sextus at all, would be available, so that they would make Sextus’ argument inconclusive.

Now, the formulation in *M* 3 suggests that ‘stretching’ (*ἐπίτασις*) was the way (some) geometers actually tried to answer the empiricist challenge against the conception of line as breadthless length. The idea seems to be

<sup>77</sup> Mueller 1982: 78 notes that in so far as the Stoic *μετάβασις* appears to be a ‘quasi-scientific inference to an explanatory concept’, but the line does not seem to have such a role, *μετάβασις* may not be applicable to line.



that we can conceive of line as the limit towards which an infinite series of successive reductions of the other dimension of a surface converge. It would be exciting to see how exactly this idea was expressed by the geometers. In any case, Sextus does not accept such a notion of a limit of an infinite series and he states, not unlike a Stoic would do, that there will be some breadth remaining after any finite number of steps; the length that has however small a breadth is still not breadthless. Or, there is a least breadth, and once we have removed that, there will be no length left either.

One cannot but agree with Mueller that Sextus' treatment of privation (στέρησις) is 'rather unsatisfactory'.<sup>78</sup> Sextus' notion of στέρησις is very narrow and in this sense remains close to what, judging from the example in Diogenes, the Stoics may have meant by that term ('by στέρησις, for instance man without hands'; Diogenes Laertius 7.53). His principal point is that privation cannot operate by negating an essential attribute of the subject. The examples he gives to substantiate this point are particularly noteworthy: flesh cannot be conceived of without vulnerability just as *body cannot be conceived of without resistance*. This last one may have been entirely appropriate in its original context but comes quite abruptly after the complete neglect of this question all through the chapter. And of course, Sextus has not yet established that the possession of breadth is such an attribute without which length cannot be conceived; it is exactly what he is supposed to show now.

Sextus' argument against Aristotle is similarly unrefined. Aristotle, in his defence of this particular conception of line, pointed out that 'when we grasp the length of the wall, we apprehend it without the breadth of it' (M 9.412; fr. 29 Rose). Sextus' response consists in stating that even if we apprehend the wall's length without the actual breadth of the wall, we never do it without any breadth.

Much more could be said about this epistemological section, but this last point is a good reminder of the larger structural problems that the whole discussion of line as breadthless length raises. Remember that Sextus has undertaken the discussion of point and line because he assumed that (the concept of) length, and hence (that of) body, is dependent on these. We need line to conceive of length: line is primary, so if there is no line, there will be no length either. Yet the treatment of line in this section takes the opposite approach. It takes for granted that we have an object which has at least length and breadth, and it argues that from this we cannot arrive at the conception of something which has length only (or is

<sup>78</sup> Mueller 1982: 80.

breadthless length). But even if the argument went through, from the inconceivability of line thus defined, it does not follow that we cannot conceive something that has length, breadth and depth. Thus, this long section does not seem to have any real effect on the question whether the conception of body as that which has length, breadth and depth (with or without resistance) is coherent in itself. It is clearly an argument that the empiricist corporealists can use against fundamental geometrical notions; more specifically, this argument can also be used against those geometers, such as Euclid, who do not base their case on the derivation sequence of these entities. We find, once again, an argument which is entirely appropriate in a general attack on the geometers but is at odds with what is supposed to be on Sextus' agenda in this chapter.

### *Touching limits*

The remaining part of the section on line (414–18), as well as the better part of the section on surface (431–3), exploit *aporiai* arising from touch: when two entities are juxtaposed, or touch one another, what happens to their corresponding limit entities? Do they become fused into one or do they remain distinct, reiterating thus the contact problem? Sextus in this section does not develop the corresponding separation problem, which appears to require the division of a point into two, or the cutting of a line along its length, or the reduplication of a surface by slicing. This is a genuine, and much discussed, problem for which ancient mathematical theory does not seem to furnish an entirely satisfactory answer.<sup>79</sup>

It is noteworthy that Sextus, in both sections, formulates the touching problem in such a way that the limit entities in each case belong to bodies. So when he speaks about the problems concerning the touching of two lines, he does not discuss what 'happens' to the points that are the limits of the lines, whether they melt or remain distinct. Instead, he construes the issue thus that the touching lines are themselves the limits of surfaces of bodies (415). The question, formulated in this way, will apparently be as follows: imagine two rectangular objects touching each other with two respective surfaces, so that the surfaces perpendicular to the touching surfaces (surfaces *A* and *B* on [Figure 4.2](#)) are in line with one another; now the lines that are the limits of these surfaces, *a* and *b*, are parallel to each other and are in touch.

<sup>79</sup> Cf. White 1992, esp. Part One, and the relevant parts of the Cone Problem 293–306 and Mueller 1982: 82–6.

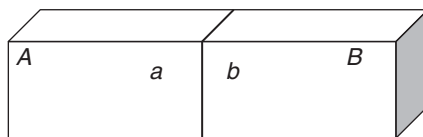


Figure 4.2

The question then is whether these two touching parallel lines become one or remain two; Sextus obviously aims at showing that both options result in absurdities. The first horn of the dilemma, namely that the two lines become coincident and unified, applies the geometrical description that would be acceptable also to Aristotle, and possibly to the Stoics,<sup>80</sup> whereas the counter-arguments combine geometrical and physical considerations. Assuming that two entities (surfaces or bodies) cannot share, or be separated by, one limit, and ignoring the possibility that one of the entities is an open segment (which would be the contemporary solution), Sextus claims that the unification of the two lines would result in the unification (ἔνωσις) of the two surfaces, and hence of the two bodies. The first objection to this scenario is that this is not what we observe in the case of physical bodies: liquids might, but stones and other solid bodies do not become unified when juxtaposed. Then, apparently forgetting that he explicitly stated at the outset of this set of arguments that, *ex hypothesi*, we are still considering the line to be breadthless, he objects that by the unification of the two lines we would thus lose one edge, and therefore the resulting unified object would be smaller than the sum of the two original bodies. The treatment of the other horn of the dilemma – that the two lines remain distinct – is, however, supposed to be contradicted by precisely that assumption.

The problem of touching bodies recurs in a different, and even less refined, form in the discussion of surfaces (431). In this case, the purported difficulty arises from the distinction between the limit and the limited. If limits are distinct from the body they are the limits of, and if they cover the body from the outside and contain it as the jar contains the liquid, then we must say, absurdly, that the two bodies are not in touch, but only their limits are, or that the bodies somehow reach beyond (ἐκτός) their own limits. What might give force to these arguments is that at least some Stoics

<sup>80</sup> Cf. Plutarch, *Comm. Not.* 1080E–1081A. Plutarch objects, however, that on the Stoics' own view limit entities, being incorporeals, cannot undergo such changes, i.e. come into being or pass out of being, as would be required by this view.

apparently claimed that limits are not parts of the body in so far as the parts of bodies must be bodies themselves (Stobaeus, *Ecl.* 1.167.9–14 W).

### The final argument

At the end of the chapter Sextus presents a further, independent argument for the inconceivability of body (437–9). This is the point where he finally leaves the mathematicians behind and presents a more general consideration. The argument is closely paralleled in *PH* 3 – with some differences that we shall briefly consider below – where it is also the concluding section of the treatment of body. In *PH* 3, however, this argument takes up almost one-third of the discussion of body, whereas in our chapter it is dwarfed by the disproportionately long section on the mathematicians' conceptions. Sextus, however, introduces the argument in *M* 9 as the more powerful way to engage with the matter at hand (σθεναρῶς συνάγοντα τὸ προκείμενον). Note that if one accepts Mutschmann's conjecture in *M* 9.367, then Sextus uses here the same construction as the one by which he announced that he would next turn to the mathematicians' conceptions (κατὰ δὲ τὰς τῶν μαθηματικῶν ἐννοίας νῦν συντακτέον τὸ προκείμενον).

According to the opening dichotomy of the argument, body is the object of perception or the object of thought. The first horn seems very promising, especially in view of the fact that the Epicureans argued for the existence of bodies by simply referring to perception: 'That bodies exist is universally witnessed by sensation itself' (σώματα μὲν γὰρ ὡς ἔστιν, αὐτῇ ἢ αἴσθησις ἐπὶ πάντων μαρτυρεῖ, *Ep. Hdt.* 39, trans. Long 8 Sedley; cf. Lucretius 422–3). Acknowledging that he has primarily Epicurus in view, Sextus immediately provides the relevant Epicurean definition of body:

For it [sc. body] is a complex quality grasped according to composition of shape, size and resistance.<sup>81</sup>

The formulation strongly resembles the one in *Ep. Hdt.* 68–70 that we considered above, and the closeness to the Epicurean original is further indicated by the use of the word 'complex' (ἄθροος). We have seen that this is Epicurus' technical term for the complex of permanent attributes.<sup>82</sup> Epicurus may nonetheless object to calling body a complex *quality* (ἄθροα ποιότης): he speaks about a complex conception of body (ἄθροα ἐννοία

<sup>81</sup> ἄθροα γὰρ ἦν ποιότης κατ' ἐπισύνθεσιν σχήματος καὶ μεγέθους καὶ ἀντιτυπίας λαμβανομένη. The list is different in *PH* 3.47: 'length and breadth and depth and resistance and colour and various other items together with which they are observed'.

<sup>82</sup> Note that *PH* 3.47 speaks about συναθροισμός at this point.

τοῦ σώματος, *Ep. Hdt.* 68). Sextus' argument, however, turns exactly on this point. He declares that such a composite quality is not the object of perception. *PH* 3 is a little more explicit: 'But they say that the senses are simply affected (ἀπλοπαθεῖς).' According to a full corpus *TLG* search ἀπλοπαθής occurs only in Sextus, and only in *PH*,<sup>83</sup> yet the wording suggests that Sextus is not introducing an external premise but is referring to an epistemological doctrine advocated, or accepted, by those who hold this view about body. The problem he raises may be construed as a version of the 'wooden horse' problem of the *Theaetetus* (184c–d): the complex is not perceived directly by the senses, and we need something further to bring together the information provided by the senses. Yet Sextus seems to refer directly back to the epistemological interlude in the discussion of line: the complex quality is grasped according to composition (ἐπισύνθεσις), and composition was there listed as one form of transference (μετάβασις), which was in turn contrasted with immediate perceptual encounter with manifest things. The recurrence of this term – missing from *PH* 3 – is notable because it indicates that the argument present also in *PH* 3 was rephrased in *M* 9 in terms of the preceding epistemological material, which is part of the mathematical section, and hence absent from *PH* 3. We have moreover seen that there is some evidence coming from Diogenes Laertius to indicate that ἐπισύνθεσις was part of Epicurean epistemology; a further signal that Sextus' criticism is internal. Although this line of reasoning is not exploited by Sextus, we may add that from an Epicurean point of view, when we form the conception of something by composition, we do so 'with the help of a measure of reasoning' (Diogenes Laertius 10.32), and thus the existence of these objects is not directly guaranteed by perception.

The problem raised by Sextus seems to be explicitly discussed by the Epicureans. First, it is crucial that, just as for Aristotle, the proper objects of the different senses do not overlap; the Epicurean argument for this claim is that if this were not so, different senses might provide contrasting evidence on the same thing. *Prima facie*, it would be tempting to think that at least some of the properties, such as shape, are the objects of vision. Yet as a number of texts make clear, the Epicureans follow Aristotle in thinking that colour, and only colour, is the proper object of vision. We can focus on shape on the basis of the stream of images coming from a body, but the shape perceived thus is not the shape of the body, but the

<sup>83</sup> In *PH* 3.108 it is used in an argument to show that change is not perceptible, because we should be able to perceive both from what and into what the object changes.

shape of the colour.<sup>84</sup> This is emphasized also in a papyrus text which appears crucial in finding an answer to the problem Sextus raises. Its Epicurean author, perhaps Philodemus, stresses that body as such is the proper object of touch.<sup>85</sup> On this view, then, we do not grasp body as a complex of properties each of which is the proper object of different senses; body is presented directly in a single perception by touch.

Assigning body to touch as its proper object is a notable divergence from the Aristotelian view according to which the proper objects of touch are the ranges of qualities defined by the contraries of hot and cold, dry and wet, and possibly other qualities such as hard and soft (*de An.* 2.11.422b27). It is true that Aristotle later specifies that what unites these qualities, and hence guarantees that touch is a single-sense modality with a unified proper object, is that these are the distinctive qualities of body *qua* body, in so far as these are the primary qualities that characterize the elements (*de An.* 2.11.423b27–31); this, however, still does not make body the proper object of touch as the Epicureans apparently held. Indeed, it is tempting to think that the Epicurean doctrine is motivated precisely by its being able to ward off the objection that, in so far as it is not the proper object of any of the senses, body is not immediately perceived. On the basis of this modification, the Epicureans could still agree that the senses are ἀπλοπαθής but would refuse that we need composition, and hence ‘some measure of reasoning’, to grasp body. Within body we can then distinguish, by the special mental act of focusing, the different items of the ἄθροον (shape, size and resistance), as Epicurus in *Ep. Hdt.* 68–70 also claims, just as we can focus on the shape of the colour that we are presented with in vision.

Unfortunately, this may not be the end of the story, for at this juncture it becomes important which properties are included in the ἄθροον. The list of properties given in our chapter (shape, size and resistance) may be taken care of in the way just suggested. If, however, we take the list given in the parallel text in *PH* 3.47, which includes also colour (and the inclusion of colour may find support in Epicurus’ own formulation in *Ep. Hdt.* 68), then Sextus’ unification problem re-emerges.

<sup>84</sup> *M* 7.207 (reporting the Epicurean view): οὐ γὰρ ὅλον ὁρᾶται τὸ στερεμένιον, ἵνα ἐπὶ τῶν ὁρατῶν ποιῶμεθα τὸν λόγον, ἀλλὰ τὸ χρῶμα τοῦ στερεμένου.

<sup>85</sup> *P.Herc.* 19/698, cols. 17–18: τὴν μέ[v] γ[ά]ρ [δ]ψιν ὁρατὰ κατα[λ]αμβ[ά]νειν ἡγοῦμεθ[α], τὴν δὲ ἀφὴν ἀπτά, κα[ί] τὴν μὲν χρώματο[ι]ς, τὴν δὲ σώματος ... ὥστε κατ’ αὐτὴν ἀναλογίαν κοινὰ κρίματ’ εἶναι τῶν αἰσθήσεων τού[των] τὸ σχῆμα καὶ τὸ μέ[γεθ]ος, ὃν λόγον ἔχει τ[ὰ] τοῦ χρώματος π[ρὸ]ς τὸ χρῶμα, τοῦτον ἐχόντων [τ]ῶν τοῦ σώματος πρὸς τὸ σῶμα, καὶ ὃν λόγον ἔχει τὸ χρῶμα πρὸς τὴν διὰ τῆς ὁράσεως [κατ]άληψιν, τοῦτον τοῦ σώματος π[ρὸ]ς τὴν διὰ τῆς ἀφῆς ... See Monet 1996; see also Sedley 1989.

The other horn of the initial dilemma, according to which body is the object of thought, appears less interesting. It is based on the strict empiricist principles evidenced also in the epistemological interlude: A can be the object of thought only if there exists some B such that B is the object of perception, and the conception of A can be derived, presumably by the different modes of transference (μετάβασις), from the direct perception of B. If body is not an object of perception but is an object of thought, we are left with no candidate to take the role of B, for incorporeals are clearly inadequate for the task.

### Concluding remarks on relative chronology

Can the preceding analysis offer any clues regarding the relationship between *PH* and *Against the Physicists* on the one hand, and *Against the Geometers* and *Against the Physicists* on the other? As to the first question, our analysis may give some slight support to the received view that *Against the Physicists* comes after *PH* 3. Or, to put it in an even more qualified way, there are indications that the chapter on body in *M* 9 as we have it is later than the corresponding part of *PH* 3.

I would tentatively suggest the following scenario. In *PH* 3 Sextus remains closer to the original plan of discussing the material principle after the discussion of god. In a second phase he turns to the discussion of the conception of body in which resistance (ἀντιτυπία) is never lost from sight. Finally, the discussion of Epicurus' alternative conception occupies a proportionately large part of the chapter. True, the series of arguments is not particularly well structured: for example questions concerning the relationship between the constituents and body and the existence of the dimensions are not clearly separated. But on the whole, the chapter is relatively well balanced.

Then comes *Against the Physicists*. The chapter on body confuses the articulation between the discussion of the material principle and body. The separate discussion of the material principle is skipped; Sextus introduces the corporealist–incorporealist distinction instead and immediately jumps to the discussion of body. I find it easier to think that this is an unhappy modification of the original plan occasioned by the more extensive material than that the awkwardness of this ordering presents the original version, which was then cleared up in *PH*. Consider, for instance, the use of the doxographical material. We have every reason to believe that it was presented in Sextus' source as an inventory of the different views on the material principles; this is confirmed also by the introductory words in

Ps.-Galen. Sextus nevertheless presents it in our chapter as part of a different strategy. I find it unlikely that Sextus first used it in *M* 9 removed from its original context and in a confusing way and then reused it in *PH*, restoring it to its proper context, and going back to his original source, adding also the introductory words that he first left out in *M* 9.

Now, what about the main structural difference between the relevant section of *PH* 3 and our chapter, namely the prominence of the discussion of the mathematicians' conceptions, that creates a considerable imbalance in our text? Roughly, there are two possibilities. We can think that Sextus turned away from the agenda of *PH* 3, perhaps because he thought that the discussion of the geometrical notions might pull the rug from under all conceptions of body, introduced the mathematicians' conception of body, and then got carried away – sometimes quite far away – and included considerations that have no immediate bearing on the primary issue on his agenda. Point, line and surface, to be sure, were already mentioned in the relevant section of *PH* 3. Yet I find it difficult to believe that all the arguments presented in this long section, including the ones about the geometers' theorems, and so on, were developed or collected in view of the proclaimed objective of our chapter. It is a much more economical hypothesis, I believe, that this series of arguments originally formed part of a systematic attack on the geometers and then were integrated in our chapter with some reshuffling and little shortening, with the result that the discussion of body in *Against the Physicists* became so strikingly imbalanced. This hypothesis implies that, whether or not *Against the Geometers* had by that time received its final form, the main bulk of the material presented in it was already available in a fairly organized form when Sextus was composing this part of *Against the Physicists*.<sup>86</sup>

<sup>86</sup> I am of course aware of the fact that the received view holds that *M* 7–11 is earlier than *M* 1–6. Some earlier scholars, e.g. Zeller and Brochard, however, argued for the sequence *PH*; *M* 1–6; *M* 7–11 (cf. Zeller 1876–1909: vol. III.2, 51, n. 2; Brochard 1923: 318–19). Without undertaking a full examination of this issue now, let me merely mention that the principal argument for taking *M* 7–11 as earlier than *M* 1–6 is that Sextus in the course of *M* 1–6 seems to refer back to *Against the Physicists* twice (see e.g. Floridi 2002: 10). First in *M* 1.35: 'One must bring over the puzzles from those we have already brought forward in our controversy against the physicists concerning change and going through generation and perishing.' Yet, clearly, this may just as well be a reference to the relevant parts of *PH* 3; indeed the distinction between μεταβολή on the one hand and generation and perishing on the other seems to point to *PH* 3 rather than to *M* 10. The other cross-reference comes from the concluding sentence of *Against the Geometers* and refers back to the arguments that have established the impossibility of subtraction in ἐν τῷ πρὸς τοὺς γραμματικούς καὶ ἐν τῷ πρὸς τοὺς φυσικούς ὑπομνήματι: part from whole or from part, equal from equal, less from greater, greater from less. Once again, I find no guarantee that this reference is to *M* 9.297–307 and not to *PH* 3.85–96.



## *Appendix I: Structural overview of M 9.359–440*

- A. The doxography of primary elements (359–64)
- B. Transition to the investigation of body (365)
- C. The capacity to act or to be acted upon (366)
- D. The relation between body and dimensions (367–75)
  - 1. Body is conceptually separate from the three dimensions (368)
  - 2. Body is the complex (*athroisma*) of the three dimensions (369–74)
    - 2.1 Dimensions are incorporeals (369–70)
    - 2.2 Each dimension contains corporeality and the *logos* of body (371–2)
    - 2.3 Body supervenes on the conjunction of the three dimensions (373–5)
      - 2.3.1 After conjunction they retain their incorporeality (373)
      - 2.3.2 After conjunction they become corporeal (374)
- E. The non-existence of dimensions and the conceivability of fundamental geometrical objects (375–433)
  - 1. Introduction: the connection between length and line
  - 2. The inconceivability of point (377–8)
    - 2.1 The point is corporeal (377)
    - 2.2 The point is incorporeal (378)
  - 3. The inconceivability of line (380–429)
    - 3.1 Line is a point which has flowed (380–5)
      - 3.1.1 The point occupies the same place (381)
      - 3.1.2 The point changes its place (382–5)
        - 3.1.2.1 Leaving one place and taking up another (383)
        - 3.1.2.2 Occupying one place and extending to another (384–5)
          - 3.1.2.2.1 Extending to an indivisible place (384)
          - 3.1.2.2.2 Extending to a divisible place (385)
    - 3.2 Line is a row of points (386–8)
      - 3.2.1 With intervening places (386)
      - 3.2.2 The points touch each other (387)
        - 3.2.2.1 They touch parts with parts (387)
        - 3.2.2.2 They touch wholes with wholes (388)

- 3.3 Interim conclusion: in so far as line cannot be conceived in relation to point, body does not exist (389)
- 3.4 Line is breadthless length (390–413)
  - 3.4.1 Length without breadth is not perceptible (391)
  - 3.4.2 Length without breadth is not intelligible (392)
  - 3.4.3 General typology of ways of concept formation (393–5)
    - 3.4.3.1 According to encounter with manifest things (394)
    - 3.4.3.2 According to transformation of manifest things (394–5)
      - 3.4.3.2.1 Resemblance
      - 3.4.3.2.2 Composition
      - 3.4.3.2.3 Analogy: increase and decrease
  - 3.4.4 Application of the above to the conception of line (397–402)
    - 3.4.4.1 According to encounter with manifest things (397)
    - 3.4.4.2 According to transformation of manifest things (398–401)
      - 3.4.4.2.1 Resemblance (398)
      - 3.4.4.2.2 Composition (399)
      - 3.4.4.2.3 Analogy: increase and decrease (400–1)
  - 3.4.5 Interim conclusion: if these are the ways of concept formation, the line is inconceivable (402)
  - 3.4.6 Further ways of concept formation: intensification and abstraction (403–13)
    - 3.4.6.1 Intensification (403–6)
    - 3.4.6.2 Abstraction (407–13)
      - 3.4.6.2.1 Privatives do not exist (407–11)
      - 3.4.6.2.2 The criticism of Aristotle (412–13)
- 3.5 Line is the limit of surface (414–18)
  - 3.5.1 When two lines are juxtaposed, they become one (415–16)
  - 3.5.2 When two lines are juxtaposed, two parallel lines remain (417)
- 4. *Aporiai* about geometrical hypotheses/theorems (419–30)
  - 4.1 Revolving line and the surface of the circle (420–5)
    - 4.1.1 Concentric circles are not continuous (422)
    - 4.1.2 Concentric circles are continuous (423–4)
  - 4.2 The revolving line measures out the surface of the circle (426–7)
    - 4.2.1 The line does not move over all parts of the surface (427)
    - 4.2.2 The line moves over the entire surface (427)
  - 4.2 The line which is the side of the square measures out the square (428)
  - 4.3 The revolving cylinder touching the surface at a line (429)

- 5. The inconceivability of surface (430–6)
  - 5.1 Conceptions of surface (430)
  - 5.2 What happens when the limits of bodies are juxtaposed? (431–3)
    - 5.2.1 Limit touches limit (432)
    - 5.2.2 Limited touches limited (432)
    - 5.2.3 Limited touches limited and limit touches limit (433)
  - 5.3 Surface is:
    - 5.3.1 A body (434)
    - 5.3.2 Incorporeal (435)
  - 5.4 Conclusion: The absurdities following from the conception of surface as limit of the body leads to suspension of judgement
- F. Is body perceptible or intelligible? (437–9)
  - 1. Body as such is not perceptible (437)
  - 2. Body is not intelligible (438–9)
- G. Conclusion and transition to the examination of incorporeals (440)

## *Appendix II: The doxographical section*

### **1. Pseudo-Galen and Sextus**

The treatise called *Philosophical History* (Φιλόσοφος ἱστορία) transmitted under the name of Galen is one of the ‘low-end’ products of the doxographical tradition. It draws heavily on the material provided by Ps.-Plutarch but incorporates material from a different tradition as well. According to his introductory paragraph (ch. 2), Ps.-Galen tried to make a collection for the profit of those who are eager to know. The expected advantage is not the realization of the forlornness of the enterprise of the earlier philosophers, and sceptical suspension of judgment, but rather gain in knowledge which has ethical significance as well. Ps.-Galen starts his presentation with a summary of the succession of philosophical schools according to the traditional divisions (ch. 3). Next come sections on the various definitions of philosophy, then a chapter on the different views on the parts of philosophy and their ordering. In organizing his work Ps.-Galen apparently wants to follow what he presents as the majority view: logic–physics–ethics, without, however, ever really reaching ethics. Accordingly, after further brief preparatory sections on the notion of a philosophical school (*hairesis*) and the *archē* of philosophy, comes a set of logical sections (chs. 9–15: on sign, syllogism, definition, the criterion of truth, truth, diairesis, proof), followed by physical topics. The physical section falls into two parts. The first series (chs. 16–24) is a very coarse selection of the most important physical topics: the cosmos, the material principle, motion, body, and soul, whereas the second, much longer series (chs. 25–133) offers a considerably more fine-grained presentation of general physical topics, followed by sections on cosmology, astronomy, psychology and physiology. On a number of occasions items in the two sets overlap, and the author does not make any attempt at coordinating or harmonizing them. For the last longer section the author epitomized Ps.-Plutarch, reducing it to half, occasionally adding some short remarks.

The logical part (chs. 9–15) and ch. 18 on the material principle find close, in some case verbatim, parallels in Sextus; these parallel texts, moreover, are not paralleled in other texts of the Aetian doxographical tradition. The nature of the relationship between the *Philosophical History* and Sextus has been a matter of debate, and, as Mansfeld and Runia have shown,<sup>87</sup> this debate constitutes a

<sup>87</sup> Mansfeld & Runia 1997: 60–1 and 141–52.

notable episode in the historiography of the doxographical tradition. Diels devoted his doctoral dissertation (1870) to Ps.-Galen's text and assumed that the relevant parts of the *Philosophical History* are copied from Sextus. This contention was forcefully criticized by Volkmann 1873, who focused on the parallels in the treatment of logical topics and argued that there was no direct relationship between the two authors, but both drew on a common source, which is, however, not Ps.-Plutarch. Diels returned to the question in *Doxographi Graeci* and discussed it in considerable detail (233–58). Somewhat grudgingly, he accepted Volkmann's hypothesis.

## 2. Comparison of the parallel passages

| Ps.-Galen, <i>De Historia Philosophica</i> 18                                                                                                                                                                     | PH 3.30–2                                                                                                                                                                                                                            | M 9.360–4                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Καὶ περὶ μὲν τῆς δραστηκῆς αἰτίας ἐπὶ τοσοῦτον. διεξελθεῖν δ' ἂν εἴη καιρὸς καὶ περὶ τῆς ὑλικῆς. οἱ φυσικοὶ περὶ ταύτης εἰπόντες εἶναι μὲν ἀρχὴν ὑλικὴν ἅπαντες ὁμοίως δεδώκασιν, οὐ μὴν ἅπαντες εἶναι τὴν αὐτήν. | Περὶ μὲν οὖν τῆς δραστηκῆς τοσαῦτα νῦν ἀρκέσει λελέχθαι συντόμως δὲ καὶ περὶ τῶν ὑλικῶν καλουμένων ἀρχῶν λεκτέον. ὅτι τοίνυν αὐταὶ εἰσιν ἀκατάληπτοι, ῥᾶδιον συνιδεῖν ἐκ τῆς περὶ αὐτῶν γεγενημένης διαφωνίας παρὰ τοῖς δογματικοῖς. |                                                                                                                 |
| ἀλλὰ Φερεκύδης μὲν ὁ Ἀσσύριος γῆν εἶναι ταύτην ἐνόμισε,                                                                                                                                                           | Φερεκύδης μὲν γὰρ ὁ Σύριος γῆν εἶπε τὴν πάντων εἶναι ἀρχήν,                                                                                                                                                                          | Φερεκύδης μὲν ὁ Σύριος (Ασσυαρρο- Ν) γῆν ἔλεξε πάντων εἶναι ἀρχὴν καὶ στοιχεῖον,                                |
| Θαλῆς δὲ ὕδωρ, Ἀναξίμανδρος δὲ τὸ ἄπειρον, Ἀναξίμενης δὲ καὶ                                                                                                                                                      | Θαλῆς δὲ ὁ Μιλήσιος ὕδωρ, Ἀναξίμανδρος δὲ ὁ ἀκουστής τούτου τὸ ἄπειρον, Ἀναξίμενης δὲ καὶ                                                                                                                                            | Θαλῆς δὲ ὁ Μιλήσιος ὕδωρ, Ἀναξίμανδρος δὲ ὁ ἀκουστής τούτου τὸ ἄπειρον, Ἀναξίμενης δὲ καὶ Ἰδαῖος ὁ Ἱμεραῖος καὶ |
| Διογένης ὁ Ἀπολλωνιάτης ἀέρα,                                                                                                                                                                                     | Διογένης ὁ Ἀπολλωνιάτης ἀέρα,                                                                                                                                                                                                        | Διογένης ὁ Ἀπολλωνιάτης καὶ Ἀρχέλαος ὁ Ἀθηναῖος, Σωκράτους δὲ καθηγητής, καὶ κατα; ἐνίου Ἡράκλειτος ἀέρα,       |
| πῦρ δὲ Ἴππασος ὁ Μεταποντῖνος                                                                                                                                                                                     | Ἴππασος δὲ ὁ Μεταποντῖνος πῦρ,                                                                                                                                                                                                       | Ἴππασος δὲ ὁ Μεταποντῖνος καὶ κατ' ἐνίου Ἡράκλειτος πῦρ,                                                        |
| Ξενοφάνης δ' ὁ Κολοφώνιος γῆν καὶ ὕδωρ.                                                                                                                                                                           | Ξενοφάνης δὲ ὁ Κολοφώνιος γῆν καὶ ὕδωρ,                                                                                                                                                                                              | Ξενοφάνης δὲ ὕδωρ καὶ γῆν (πάντες γὰρ γαίης τε καὶ ὕδατος ἐκγενόμεσθα),                                         |

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| <p>"Ιππων δὲ ὁ Ῥηγῖνος πῦρ καὶ ὕδωρ,<br/> Οἰνοπίδης δὲ ὁ Χῖος πῦρ καὶ ἀέρα,<br/> Ὅνομάκριτος δὲ ἐν τοῖς Ὀρφικοῖς γῆν καὶ πῦρ καὶ ὕδωρ,</p> <p>οἱ Στωικοὶ δὲ τέσσαρα στοιχεῖα γῆν καὶ πῦρ καὶ ὕδωρ καὶ ἀέρα,</p> <p>Ἀριστοτέλης δὲ τούτοις προσέθηκε καὶ τὸ κυκλοφορητικὸν σῶμα. Ἐμπεδοκλῆς δὲ τέτταρσι στοιχείοις προσήγαγε φιλίαν καὶ νεῖκος, τῶν μὲν τεσσάρων στοιχείων ὑλικῶν ὄντων καὶ τῆς φιλίας ταῦτα συγκρινούσης, τοῦ δὲ νεῖκος διαλύοντος καὶ διακρίνοντος·</p> <p>Δημόκριτος δὲ καὶ Ἐπίκουρος τὰς ἀτόμους ἀρχὰς πάντων νομίζουσιν, Ἡρακλείδης δὲ ὁ Ποντικός καὶ Ἀσκληπιάδης ὁ Βιθυνὸς ἀνάρμους ὄγκους τὰς ἀρχὰς ὑποτίθενται τῶν ὄλων,</p> <p>Ἀναξαγόρας δὲ ὁ Κλαζομένιος τὰς ὁμοιομερείας, Διόδωρος δὲ ὁ Κρόνος ἐπικεκλημένος ἀμερῇ καὶ ἐλάχιστα σώματα,</p> <p>Πυθαγόρας δὲ τοὺς ἀριθμούς, οἱ μαθηματικοὶ δὲ τὰ πέρατα τῶν σωμάτων,</p> <p>Στράτων δὲ ὁ φυσικὸς προσωνομασμένος τὰς ποιότητας.</p> | <p>Οἰνοπίδης δὲ ὁ Χῖος πῦρ καὶ ἀέρα,<br/> "Ιππων δὲ ὁ Ῥηγῖνος πῦρ καὶ ὕδωρ,<br/> Ὅνομάκριτος δὲ ἐν τοῖς Ὀρφικοῖς πῦρ καὶ ὕδωρ καὶ γῆν,<br/> οἱ δὲ περὶ τὸν Ἐμπεδοκλέα καὶ τοὺς Στωικοὺς πῦρ ἀέρα ὕδωρ γῆν – περὶ γὰρ τῆς τερατολογουμένης ἀποίου παρὰ πισιν ὕλης, ἣν οὐδὲ αὐτοὶ καταλαμβάνειν διαβεβαίουνται, τί δεῖ καὶ λέγειν;<br/> οἱ δὲ περὶ Ἀριστοτέλην τὸν Περιπατητικὸν πῦρ ἀέρα ὕδωρ γῆν τὸ κυκλοφορητικὸν σῶμα,</p> <p>Δημόκριτος δὲ καὶ Ἐπίκουρος ἀτόμους,</p> <p>Ἀναξαγόρας δὲ ὁ Κλαζομένιος ὁμοιομερείας,</p> <p>Διόδωρος δὲ ὁ ἐπικληθεὶς Κρόνος ἐλάχιστα καὶ ἀμερῇ σώματα,<br/> Ἡρακλείδης δὲ ὁ Ποντικός καὶ Ἀσκληπιάδης ὁ Βιθυνὸς ἀνάρμους ὄγκους,</p> <p>οἱ δὲ περὶ Πυθαγόραν τοὺς ἀριθμούς, οἱ δὲ μαθηματικοὶ τὰ πέρατα τῶν σωμάτων, Στράτων δὲ ὁ φυσικὸς τὰς ποιότητας.</p> | <p>"Ιππων δὲ ὁ Ῥηγῖνος πῦρ καὶ ὕδωρ,<br/> Οἰνοπίδης δὲ ὁ Χῖος πῦρ καὶ ἀέρα,<br/> Ὅνομάκριτος δὲ ἐν τοῖς Ὀρφικοῖς πῦρ καὶ ὕδωρ καὶ γῆν,<br/> οἱ δὲ περὶ τὸν Ἐμπεδοκλέα καὶ οἱ ἀπὸ τῆς Στοᾶς γῆν καὶ ὕδωρ καὶ ἀέρα καὶ πῦρ (τέσσαρα γὰρ πάντων ριζώματα πρῶτον ἄκουε· Ζεὺς ἀργῆς "Ἡρη τε φερέσβιος ἥδ' Αἰδωνεὺς Νῆστῆς ἦ δακρύοις τέγγει κρούνωμα βρότειον),</p> <p>Δημόκριτος δὲ καὶ Ἐπίκουρος ἀτόμους, εἰ μὴ τι ἀρχαιοτέραν ταύτην θετέον τὴν δόξαν καί, ὥς ἔλεγεν ὁ Στωικός Ποσειδώνιος, ἀπὸ Μώχου τινὸς ἀνδρὸς Φοίνικος καταγομένην,</p> <p>Ἀναξαγόρας δὲ ὁ Κλαζομένιος ὁμοιομερείας,</p> <p>Διόδωρος δὲ ὁ ἐπικληθεὶς Κρόνος ἐλάχιστα καὶ ἀμερῇ σώματα,</p> <p>Ἀσκληπιάδης δὲ ὁ Βιθυνὸς ἀνάρμους ὄγκους. τῶν δὲ ἀσώματα δογματιζόντων οἱ μὲν περὶ Πυθαγόραν τοὺς ἀριθμούς ἔλεξαν πάντων ἀρχεῖν, οἱ δὲ μαθηματικοὶ τὰ πέρατα τῶν σωμάτων, οἱ δὲ περὶ τὸν Πλάτωνα τὰς ιδέας.</p> |
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### 3. Overview of the inventory

The list observes strict structuring principles. First, the different views are grouped systematically, according to the number of elements. Then, wherever it is applicable, the ordering follows the ordering of elements according to heaviness–lightness: earth, water, air, fire. This principle is observed even in the less conspicuous cases, as for example in the two-elements group.

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| Corporealists                       |                                                                                                                                                                                                                                                                                                                                                                           |
| <i>One element</i>                  | Pherecydes: earth<br>Thales: water<br>Anaximander: apeiron<br>Anaximenes: air<br><b>Idaeus of Himera: air</b><br>Diogenes of Apollonia: air<br><b>Archelaus: air</b><br><b>Heraclitus (according to some): air</b><br>Hippasus of Metapontum: fire<br><b>Heraclitus: fire</b>                                                                                             |
| <i>Two elements</i>                 | Xenophanes: water and earth<br>Hippo of Rhegium: fire and water<br>Oenopides of Chios: fire and air                                                                                                                                                                                                                                                                       |
| <i>Three elements</i>               | Onomacritus in <i>Orphica</i> : fire and water and earth                                                                                                                                                                                                                                                                                                                  |
| <i>Four elements</i>                | Empedocles: earth, water, air, fire<br>Stoics: earth, water, air, fire                                                                                                                                                                                                                                                                                                    |
| <i>[[Five elements]]</i>            | <i>[[Aristotle]]</i>                                                                                                                                                                                                                                                                                                                                                      |
| <i>Unlimited number of elements</i> | Democritus: atoms<br>Epicurus: atoms<br><b>Mochus (according to Posidonius): atoms</b><br>Anaxagoras: homeomeres<br>Diodorus Cronus: minimal and indivisible bodies<br><i>[[Heraclides: anarmoi onkoi]]</i><br>Asclepiades: <i>anarmoi onkoi</i><br>Pythagoreans: numbers<br>Mathematicians: limits of bodies<br><i>[[Strato: qualities]]</i><br><b>Platonists: ideas</b> |

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### 4. Additional remarks on the list in *M* 9

Much of the list is standard and must come directly from Sextus' source. From those present on the lists in Ps.-Galen and *PH* 3, Aristotle, Strato and Heraclides of Pontus are missing from our chapter (I have indicated these

with double square brackets in the list above). For these omissions we are, however, compensated by some curious additions which figure only in *Against the Physicists* (indicated by bold typeface). The mention of Idaeus of Himera in *M* 9.360 appears to be the one and only reference to this person in antiquity. This is not the place to discuss the historiography in detail, but it is fascinating to see the wild speculations that this single mention could lead to. Even though Sextus clearly says that Idaeus' primary element was air – and this is all that we know about him – Zeller and Diels maintained that when Aristotle says that some people think that the *archē* is an intermediate substance between air and fire (*Metaph.* 1.7.988a23; *Ph.* 1.4.187a14; cf. *Cael.* 3.5.303b10), he must be referring to Ideaus. On this basis, Idaeus received an entry in Diels–Kranz, where all the relevant Aristotelian passages, plus Simplicius' comments on those passages – none of them mentioning the name of Idaeus – are listed as testimonia. As a proud possessor of an entry in Diels–Kranz, Idaeus became an official Presocratic, to whom one can also assign a date. Guthrie, for example, dates him to the second half of the fifth century.<sup>88</sup> This is of course not based on anything, and as far as Sextus' evidence goes, Idaeus could just as well have been a Hellenistic figure. Or he could have been born before the Trojan war as Mochus of Sidon, another curious addition to the list, supposedly was. The context of Posidonius' testimony on Mochus, as well as the reason for including this reference here (missing from both Ps.-Galen and *PH* 3), is mysterious.<sup>89</sup>

That Heraclitus figures on such a list would not be remarkable in itself. It is noteworthy because Heraclitus is conspicuously missing from both Ps.-Galen and *PH* 3. But Sextus makes up for this omission by mentioning Heraclitus twice here: once making fire his principle and then, with reference to an alternative tradition (which must have reached Sextus through Aenesidemus, cf. *M* 10.233), aligning him with those who took air to be the principle.

<sup>88</sup> Guthrie 1965: 354. Some people are even more precise. Bernard Pullman, in his *The Atom in the History of Human Thought* (Oxford, 1998), p. 18, puts Idaeus around 450 BCE.

<sup>89</sup> The testimony is closely paralleled by Strabo 16.2.24: εἰ δὲ δεῖ Ποσειδωνίῳ πιστεῦσαι, καὶ τὸ περὶ τῶν ἀτόμων δόγμα παλαιὸν ἔστιν ἀνδρὸς Σιδονίου Μώχου πρὸ τῶν Τρωικῶν χρόνων γεγονότος. Strabo's text does not bring us any closer to seeing the basis of the assertion in Posidonius, or to Sextus' reason to include it here. (Strabo has just turned to the description of the achievements of the Phoenicians, and this is the only bit of information he quotes from Posidonius. See Kidd's notes ad loc. 1988: 972–5.) We find a more detailed doxography of Mochus' principles in Damascius, *Pr.* 1.323.6 (Ruelle), which speaks about aither and air, and a series of gods and a cosmic egg. I have no idea how a (proto-)atomist theory can be read into this.



## CHAPTER 5

### *Place: M 10.1–36*

*Keimpe Algra*

#### Introduction

Sextus' discussion of place in *M* 10.1–36, the first of the sections on incorporeals (*asōmata*) announced at the end of book 9, nowadays belongs to the relatively better-known parts of *Against the Physicists*. This is due in no small measure to the fact that it constituted a sample case both in Julia Annas' lucid study of the relation between Sextus and the ancient Aristotelian tradition and in Myles Burnyeat's article 'The Sceptic in his Place and Time', one of the key contributions to the debate on the scope of Sextus' scepticism and on the relation between ancient scepticism and ordinary ways of thinking and speaking.<sup>1</sup> This is not to say that its contents have been fully explored, or that they are fully understood. In this chapter I hope to be able to contribute further to the understanding of this section of *M* 10 by relating it to (1) some main features of ancient theories of place, (2) the partly parallel account of place in *PH* 3,<sup>2</sup> (3) the text of Aristotle, *Physics* 4, and (4) Sextus' sceptical strategies in general. Accordingly, my account will be structured as follows. The rest of this introductory section

Thanks are due to the participants of the Delphi symposium for their stimulating comments and suggestions. I am particularly grateful to Julia Annas for her written comments at a later stage. My Utrecht colleagues Jaap Mansfeld, Teun Tieleman and Maarten van Houste were kind enough to proofread the final version.

<sup>1</sup> See Annas 1992; Burnyeat [1984] 1997. I am much indebted to these two studies, even if I disagree with both on some points of detail. There is more background information on the relation between Sextus and the Peripatos in Repici Cambiano (1980).

<sup>2</sup> I do not have any strong opinions on the chronological priority of either *PH* or *M*, although I am aware that since the work of Janáček (1948) and (1972) it has been more or less customary to assume that *PH* is the earlier work, but that this position has been challenged by Bett 1997: xxiv–xxviii and 257–71 and others (on which see Floridi 2002: 108, n. 35). I am not even convinced that the relation between the two works needs to be considered in terms of simple chronological priority at all. In principle the gestation of the two works may have taken place in at least partly overlapping periods and the differences could be due to the different purposes of the two works, perhaps even to different intended readerships. However, for some suggestions on what *may* have been the chronological relation between some parallel passages, see my remarks on pp. 198–200.

will be devoted to some general characteristics of ancient theories of place. I shall then (pp. 187–200) lay out the structure of the accounts of place in *PH* 3 and *M* 10 respectively, each time adding some comments on the details of these accounts. On pp. 200–10 I shall address the problem of the relation between Sextus' texts and the account of place in Aristotle's *Physics*. In the final section I shall examine some questions concerning Sextus' overall strategy in his discussions of place and concerning the scope of his scepticism.

Before the emergence of the general theory of relativity, philosophical concepts of place or space were still closely connected to ordinary ways of thinking and speaking. In antiquity philosophical conceptions of *topos* and *chōra* arguably emerged from, or at least remained somehow related to, the ordinary usage of these spatial terms.<sup>3</sup> The examples used in our sources – and to some extent also the *explananda* for any theory of place – were as a rule non-technical in nature: they concerned such things as the trajectory of arrows that are being shot, or the location of a boat in a river, or of water in a jar, or of water in a jar on a boat in a river. In such a context, what sets off philosophical conceptions from ordinary conceptions is not so much that they concern different objects – for example micro-physics instead of everyday objects – but their degree of articulation and precision: they are, or should be, well-defined; they can be argued for; and they can be defended against criticisms through philosophical arguments.<sup>4</sup>

<sup>3</sup> See Algra 1995: 31–71.

<sup>4</sup> The boundaries arguably remain vague, and the distance between philosophical and ordinary usage and ordinary thinking and speaking were sometimes too close for philosophy's comfort. When Aristotle, who defines a thing's place as the limit of the surrounding body, considers the case of the location of a boat in a flowing river, he claims that the surrounding flowing water should be considered as a vessel rather than as the place of the boat, for a place needs to be immobile (*Ph.* 4.212a16–18), whereas a vessel is a 'portable' place. Hence, when a moored boat is surrounded by ever different masses of flowing water, we need not think that it *eo ipso* changes its place; conversely, when a boat floats along with the current we need not assume that it does *not* change its place because the surrounding water remains the same. So far so good. But what, then, *is* the immobile place with reference to which we decide whether the boat is at rest or in motion? Aristotle's answer is that 'rather the river as a whole is a place (ὁ πᾶς μᾶλλον ποταμὸς τόπος), for the whole is immobile' (212a19–20). This arguably is the commonsense answer: we say that the moored boat does not change its place, even though the surrounding water flows by, because we measure its rest with respect to the whole river; and we say that a boat flowing along with the current does change its place, even though its immediate surroundings remain the same, because we measure its motion with respect to the river as whole. Yet it is not immediately clear how this commonsense answer can be translated into the more technical terms of Aristotle's theory of place as an immobile surrounding surface. The least we can say is that he leaves the task of further articulating this view to us, and I am not even sure that he was aware of the difficulty. If this may count as an example of allowing too much of the vagueness of ordinary thinking and speaking to enter philosophy, Sextus, as we shall see, seems to signal an osmosis in the opposite direction: there is too much (implicit) theory, and hence room for controversy, even in our commonsense ways of dealing with the notion of place.

As I have tried to show elsewhere, classic physical conceptions of place come in two or three main types, which are all somehow related to ordinary ways of using words such as *topos*, *locus*, *spatium*<sup>5</sup> The basic distinction is between

- (1) theories which define place or space in terms of a certain extension which is being occupied, and
- (2) theories which prefer to define a thing's place in terms of its surroundings.

The former group can be subdivided into

- (1a) those theories which take the extension to belong to the emplaced body itself (in which case the use of the term 'occupy' with respect to this extension becomes rather a mere *façon de parler*), and
- (1b) those theories which take this extension to be independent, or self-subsistent, or 'absolute'.

Examples of group (1a) are (at least one way in which Plato presents) the receptacle of the *Timaeus* or Descartes' so-called *locus internus*. On reflection, such theories can be regarded as theories of extension rather than of location. Accordingly, their concepts of place or space prove to be of little use in the context of an explanation of locomotion. This is one of the reasons why Plato's theory was criticized by Aristotle,<sup>6</sup> and why Descartes was forced to introduce an additional, and surprisingly Aristotelian, notion of external place: the *locus externus*. Examples of group (1b) are the concepts of place or space of Epicurus and Newton (who in fact was arguably influenced by Epicurus through the work of Gassendi and Charleton). The most famous, or notorious, conception belonging to the second main group is of course Aristotle's concept of place as an (immobile) surrounding surface; but one may also think of the more sophisticated view of place as a thing's *relation* to its surroundings, defended by Leibniz and in antiquity at least hinted at by Theophrastus (fr. 149 FHSG).

In Sextus both the account of place in *PH* 3 and the one in *M* 10 recognize these two basic types and are structured so as to accommodate both. In *PH* 3 the two types are represented by the Stoic and the Aristotelian position respectively. In *M* 10 they are recognized more explicitly and *in abstracto*, and labelled by the terms *hupodektikos* ('receiving') and *periektikos* ('surrounding') respectively. Here as well the Stoics represent the former type, this time together with Epicurus (who is absent from

<sup>5</sup> For a fuller discussion of these main types, plus examples, see Algra 1995: 31–71.

<sup>6</sup> See e.g. *GC* 2.329a14–17 and *Ph.* 4.210a14ff.

the account in *PH* 3). The second type is, once again, exclusively represented by Aristotle, who indeed defined place as a surrounding surface and who denied the possibility of a void. With these three (or in Sextus' view: two) conceptions of place, Sextus' accounts of place basically cover all there was to cover for someone writing in the early Imperial period. Despite the influence of the *Timaeus*, Plato's views concerning the receptacle could not really count as a viable physical theory of place, and the later Neoplatonic metaphysical theories of 'formative' place (Iamblichus, Damascius, Simplicius) were yet to appear on the stage.

### Sextus, *PH* 3.119–35: the argument and some comments

It is instructive to study Sextus' discussion of place in *M* 10 against the background of the shorter, but in many respects parallel, account in *PH* 3.119–35. I shall therefore start out with the latter text. My overview of the general structure of its argument, dividing it into numbered sections, will be followed by some comments on points of detail, keyed to these numbered sections.

In the account of *PH* 3.119–35 we can discern the following more or less clearly marked parts:

- [1] *PH* 3.119. In this introductory section Sextus differentiates between the proper (*kuriōs*) or narrow usage of the term 'place' on the one hand, and non-proper (*katachrēstikōs*) or broad usage on the other ('as in "my place is the city"', *PH* 3.119), arguing that his discussion will concern the proper use only; the existence of place in this strict sense has been affirmed by some, denied by others, while some suspend judgement about it.
- [2] *PH* 3.120–1. Those who maintain the existence of place have recourse to what is evident (*enargeia*). Various considerations showing the 'evidence' of place are given.
- [3] *PH* 3.122–3. Those who deny place reject the arguments from *enargeia* as either question-begging or otherwise carrying no weight.
- [4] *PH* 3.124–30. In addition those who deny place come up with a 'more varied' (*poikilōteron*) attack, making use of the most weighty views of the dogmatists; we are first given an account plus refutation of the view of the Stoics.
- [5] *PH* 3.131–3. There follows a brief account plus refutation of the position of the Peripatetics.
- [6] *PH* 3.134. A section which is said to be of a more general nature (*koinōteron*); it contains more general arguments, independent of any particular concept of place one might opt for; the arguments rather turn on the fact that any definition of place will have to use other

problematic concepts, or treat place as co-relative to other items that are disputed.

- [7] *PH* 3.135. By way of conclusion it is claimed that the sceptic is confused by the arguments (i.e. by the arguments proper, *contra*), but he is also 'put to shame' by the *enargeia*. Hence he suspends judgement, 'in so far as the arguments of the dogmatists are concerned'.

*ad* [1]: For Sextus' differentiation between the proper (*kuriōs*) and non-proper (*katachrēstikōs*) usage of the concept of place, and its importance for our interpretation of his position, see further below, (pp. 213–15).<sup>7</sup> It is based on the distinction between 'common place' (*koinos topos*) and 'proper place' (*idios topos*) in Aristotle's account of place, *Ph.* 4.209a31–5, where the implication is that things are in their 'common place' only 'in virtue of something else' (*kat' allo*). For example: I am 'in Athens' because I am in the air, which is in a room, which is in a house, which is in a neighbourhood, which is in Athens.

*ad* [2]: Most of the contents of this section go back to the list of initial *phainomena* about place in Aristotle, *Ph.* 4.1, on which see below (pp. 200–4), and the reference to *enargeia* arguably corresponds to Aristotle's phrase 'that place exists appears to be clear from ...' (ὅτι μὲν οὖν ἔστιν ὁ τόπος δοκεῖ δῆλον εἶναι ἐκ κτλ.) in *Ph.* 4.208b1. Note that of the list of considerations from *enargeia* the first four items are presented as being based on what may roughly count as perceptual evidence (i.e. on *phainomena*): 'who, they argue, could assert that place does not exist when he sees ... when he observes ... and when he hears ...'. Only in the case of the last two items are we presented with proper *arguments* (of the *modus ponens* form). As we will see, the parallel section in *M* 10 presents *all* items in the form of arguments (see further the comparison below on pp. 200–2).

*ad* [3]: The arguments against the evidence of *enargeia* are taken from the Pyrrhonian standard arsenal. We are basically dealing with applications of the fourth mode of Agrippa (*hypothesis*, or begging the question). As for the evidence from Hesiod that was adduced in [2], as in Aristotle, in support of the *enargeia* of the existence of place, we are told that the poet is not a reliable witness *in philosophicis*.

*ad* [4]: The sceptical attack which now follows in sections [4] and [5] is introduced as ποικιλώτερον, presumably because it no longer concerns the question of the existence of place in general, but two specific attempts to fill in *what* place should be, *if it exists*: the philosophical arguments of these two sections question the conceivability or the applicability of the concepts as defined by Stoics and Aristotle respectively. In line with the general tenor of the discussion – as set out above, *sub* [2] – these sections do not contain any *arguments* in favour of any one of the two main conceptions of place. They merely list the *definitions*

<sup>7</sup> The distinction between place as 'narrowly circumscribed' (*pros akribēian* or *kata perigraphēn*) or as 'in a broad sense' (*en platei* or *kata platos*) recurs in *PH* 3.75; *M* 10.15; *M* 10.95.

provided by Stoics and Aristotle, the implication being apparently that the underlying conceptions were each supported by one or more aspects of *enargeia*, as indeed they were.<sup>8</sup>

In [4] we are first given a list of Stoic definitions of spatial terms (*topos*, *chōra*, *kenon*) which are paralleled by M 10.3, and to some extent also by Arius Didymus fr. 25 (SVF 2.503) and Aëtius 1.20.1 (SVF 2.504).<sup>9</sup> It seems more likely that Sextus used a comparable doxographical source, possibly some work like Arius Didymus from the *peri haireseōn* literature, than that he culled these definitions from, say, Chrysippus' writings himself.

The ensuing arguments against the Stoic conception of place as a three-dimensional container revolve around the alleged impossibility of conceiving a *diastēma* – the central term in the Stoic definitions of spatial terms – independent of the dimensions of the emplaced body: 'how do they conceive of it as an extension?' (πῶς καὶ λέγουσιν αὐτὸν εἶναι διάστημα, 3.125). Three arguments are given. According to the first (3.125–6), the word *diastēma* ('extension') must refer either to just one dimension or to the three of them (αἱ τρεῖς διαστάσεις). In the former case place will not be equal to the emplaced body; moreover, the place will, absurdly, be part of the emplaced. In the latter case we must conclude that, since there is no void space available in the place at issue (for, *qua* place, it is occupied) nor any other body than the body occupying the place, there is only the emplaced body with its three dimensions (and additional 'resistance' or *antitupia*). This means that the body (the only three-dimensionally extended entity available) will be its own place. This argument polemically exploits the Stoic definition of body as 'what has three dimensions plus resistance' (τὸ τριχῇ διάστατον μετὰ ἀντιτυπίας, Ps.-Galen, *Qual. Inc.* 10 = SVF 2.381), as if that formula means that *antitupia* is just an accident to the underlying 'substance' constituted by the three dimensions (ἥ δὲ συμβεβηκέναι λέγεται ταῖς διαστάσεσιν ταῖς προειρημέναις, PH 3.126). At the same time it ignores the fact that for the Stoics 'that which is capable of being occupied by body' (τὸ οἷόν τε ὑπὸ σώματος κατέχεσθαι) – the formula which constitutes the common denominator of *topos*, *chōra* and *kenon* – was conceived as independent of the emplaced body. This means that the argument does not really affect the Stoic position, for the Stoics would not have been committed to the disjunction 'either void or the *diastēma* of the emplaced body itself'.

The second argument (127–8) is based on the assumption that the dimensions cannot be twofold (ἐπεὶ διπλάι αἱ διαστάσεις οὐ θεωροῦνται, 127), that is, we

<sup>8</sup> On the importance of *definitions*, next to arguments, in Sextus' Pyrrhonist sceptical strategies see the Introduction to this volume, pp. 17–18.

<sup>9</sup> Note, incidentally, that Stobaeus, *Ecl.* 1.56.27 W. seems to attach this piece of information to the preceding name label Ζήνων καὶ οἱ ἀπ' αὐτοῦ, whereas Ps.-Plutarch's version ascribes it to οἱ Στωικοὶ καὶ Ἐπικούρου, apparently adding the name label from the next Aetian *lemma*, which has only been preserved by Stobaeus (Ἐπικούρου ὀνόμασιν παραλλάττειν κενὸν τόπον χώραν). This may once again illustrate the questionable reliability of the information that was to be found in the kind of doxographical sources Sextus had at his disposal, on which more below. On the Stoic definitions in Aëtius, Sextus and Arius Didymus, and on how they interrelate, see Algra 2003.

cannot have two overlapping ‘sets’ of three dimensions. As a result either the dimensions of the body or those of place or the void (with which place is here identified for the sake of the argument) will turn out to be non-existent, or else the two will coincide, and body will be void. Both conclusions are absurd, so there is no separate dimension of place (τόπου διάστασις), hence no place.

The third argument (129) starts out from the definition of the void as ‘that which can receive body’, arguing that on the approach of body void must either remain (in which case void and plenum are the same), or move away, or perish (in the latter two cases void will be body, for the capacities to move and to perish are typical of bodies). All three possibilities are untenable. Note, however, that the Stoics would have no problem with opting for the first possibility. For precisely *qua* ‘that which can receive body’, the void will remain what it is, also when occupied by body, although it will no longer be labelled ‘void’.

These criticisms of the Stoic position are presented as traditional, or at least as shared by others (3.125: λέγεται οὖν ὅτι κτλ.; and 3.131: ταῦτα μὲν οὖν καὶ ἔτι πλείω πρὸς τὴν στάσιν τῶν στωικῶν περὶ τοῦ τόπου λέγεται). Similar arguments in *M* 10.20 are introduced as ‘coming from the sceptical tradition’ (τὰ ἀπὸ τῆς σκέψεως), so that we may presume that this tradition was at least their proximate source. Ultimately, however, they appear to be of Peripatetic origin. As noted, in the end they revolve around the supposed inconceivability of an independent three-dimensional *diastēma*. In this respect they appear to go back to Aristotle’s discussion and rejection of the conception of place as a three-dimensional extension in *Physics* 4.<sup>10</sup>

In *Physics* 4 Aristotle seems to have three main arguments against the conception of place as ‘the extension in between the limits’ (διάστημα τι τὸ μεταξύ τῶν ἐσχάτων). The first two occur in a notoriously difficult passage at *Ph.* 4.211b15–25. According to the first argument, the concept of a three-dimensional self-subsistent place would involve an infinity of places, since not only substances but every conceivable part of any substance will have its own place. According to the second argument, such a place would have to be moving (at this point Aristotle apparently interprets the words ‘the extension in between the limits’ not simply as the extension lying between the limits of the body, but as the extension bounded by the limits of the body, and hence moving with it). A third argument, provided elsewhere in *Physics* 4, stresses that there is just one three-dimensional extension, which is the extension of the body or substance. It is the phenomenon of things moving through air that has caused the mistaken supposition that things can move through mere extension, for air seems to be incorporeal. But there is no extension apart from the extension of substances: ‘what is in between a place is whatever body it may be, but not the extension of a body’ (σῶμα γὰρ τὸ μεταξύ τοῦ τόπου τὸ τυχόν, ἀλλ’ οὐ διάστημα σώματος, *Ph.* 4.212b26–7). The assumption of two overlapping extensions (i.e. of the emplaced body and place or void respectively) leads to absurd consequences, or so Aristotle argues: ‘and if there are two such things, why shouldn’t there be an infinity of them in the same spot?’

<sup>10</sup> On these arguments and their reception in the Aristotelian tradition, see Algra 2014.

(καὶ εἰ δύο τοιαῦτα, διὰ τί οὐ καὶ ὅποσαοῦν ἐν τῷ αὐτῷ ἔσται, 216b10–11), and as a consequence ‘there will be many places together’ (πολλοὶ τόποι ἅμα ἔσονται, 211b24). It is this third Aristotelian argument in particular that appears to resonate in the first two arguments which Sextus brings in against the Stoic position. Also the last argument provided by Sextus, claiming that the void should either remain or move away or perish at the approach of a body can to some extent be traced back to Aristotle: at *Ph.* 4.216a26ff. the option of a moving void is rejected whereas the option of a remaining void runs up against the difficulty of how to distinguish its dimensions from the dimensions of the occupying body.

We may note that from an internalist Aristotelian viewpoint these arguments could be seen as making sense. Thus, from Aristotle’s perspective, the parts of a mass of water in a jar are not the sorts of things that require places of their own. Moreover, an Aristotelian might baulk at the idea of an absolute extension because ontologically it would fall outside the familiar categories. And in a sense within the context of Aristotle’s *Physics* such considerations are all that matters. After all, Aristotle’s dialectical discussion of place is not designed as an open-minded survey of other theories, nor even as a polemic against other theories, but as a constructive attempt to draw up a viable theory of place within an Aristotelian framework. But for those willing to leave that framework behind, his arguments against the conception of place as a three-dimensional extension are not compelling, witness for example Philoponus’ powerful attack in *Ph.* 557.12–563.25. And when transferred to the context of a critique of completely different physical systems, they look lame and inconclusive. The ontologies of both Stoics and Epicureans emphatically do leave room for a self-subsistent extension, be it as a second constituent of the universe (Epicurus), or as an *asōmaton* (Stoics).

So much for the Aristotelian background. That there was an interscholastic discussion between Stoics and Aristotelians on at least the concept of the void can be inferred from Alexander of Aphrodisias, as quoted by Simplicius (in *Cael.* 285.27–286.15), who records Peripatetic arguments against the Stoic conception of an extra-cosmic void. Cleomedes (*Cael.* 1.81–112), in his turn, records some Stoic replies. Alexander also quotes Xenarchus of Seleucia (Simplicius, in *Cael.* 286.2–6), who despite his Peripatetic leanings, appears to have defended the conception of such a void against Aristotle’s misgivings in *in Cael.* 1.2. Arguments from this interscholastic debate may well have filtered through into the sceptical tradition.

*ad* [5]: The arguments against the Peripatetic concept of place revolve around the fact that this place is ontologically dependent on there being both an emplaced body and a surrounding body, which means that such a place cannot be conceived of as pre-existing and hence can play no role in the description of locomotion. The first argument claims that, when conceived in advance as the final destination of a particular moving body, such a place would necessarily both be (i.e. as a pre-existent place awaiting the body which is to fill it) and not be (i.e. because it does not exist as a surrounding surface prior to the advent of the body) at the same time. The second argument claims that if such a place exists, it must be either



created or uncreated; yet both possibilities turn out to be inconceivable, given the specific requirement that place should somehow be moulded around the emplaced body. Hence it cannot exist,

Unlike the arguments that were used against the Stoics, these arguments do seem to make sense and hit their target, for they focus on a difficulty *within Aristotle's theory itself*, namely the difficulty of reconciling (a) the required separate character of place – it should be something that can be left behind – and (b) the claim that place is somehow linked with, or even correlative to, the emplaced body.<sup>11</sup> As for (a), Aristotle himself had formulated, as one of the primary requirements for any decent conception of place, that 'the place where the thing is can be left by it, and is therefore separable from it' (*Ph.* 4.211a3). As for (b), we find the explicit claim (*Ph.* 4.212a29–30) that 'place is together with the object, for the limits are together with what is limited' (ἅμα τῷ πράγματι ὁ τόπος ἅμα γὰρ τῷ πεπερασμένῳ τὰ πέρατα). So one may well question whether Aristotle's own eventual conception of place as a surrounding surface exhibits the required independence.

The problem would not appear to be acute as long as one focuses on static emplaced substances, and this is why the theory is adequate to describe the place of a body before it begins to move, or the place of a body after it has moved. But difficulties arise as soon as we focus on the process of locomotion as a whole (i.e. as the traversing of a continuous series of places) and try to indentify either the places which have been left behind when the process has been completed, or the places which are to be occupied before the process starts. Similar problems concerning the conception of place as a surrounding surface – and as such belonging to a mobile and flexible substance, while also being conceived of strictly in relation to the emplaced body – had already been signalled by Theophrastus (see fr. 146 FSHG on, among other things, place being mobile) and Eudemus, who is said to have claimed (fr. 73 Wehrli) that 'a further cause of the difficulty of the problem of place is that [the notion of] place is not easy to grasp, because it altogether escapes us when the body in it is removed, and it is not possible to apprehend it in itself, but, if at all, in combination with something else, like the sounds of the so-called consonants. For with "a" added the sound of "b" and "c" becomes clear.'<sup>12</sup>

<sup>11</sup> Annas 1992: 218 claims that we are here dealing with 'a set of arguments which do not rely on special features of that [i.e. Aristotle's] account, but just recycle general sceptical strategies'. I think this would be to mistake their philosophical power. Arguments like these have traditionally played an important role in discussions of Aristotle's theory of place. For the kind of issue they address, see the sample case discussed by Sorabji 1988: 189–90: if we consider a boat moving in a river, which immobile place is there that the moving boat can be said to leave behind? Even if we accept the suggestion that the place of the boat is not the surrounding surface, *qua* surface of the surrounding *water*, but *qua* surface of the surrounding *river* as a whole, are we not forced to assume that the successive places of the boat are instantaneous entities? Morison 2002: 165 counters this objection on Aristotle's behalf by claiming that 'the river just changes in respect of its form around the boat as it moves; surely it could perfectly well regain the same form around the boat or another boat', and 'shapes, sizes, limits, colours, etc. are assumed – sometimes instantaneously – and then they can be reassumed'. This, however, seems to me to come close to presenting the problem as the solution.

<sup>12</sup> On which see Algra 1995: 234–7 and 254–5; and Algra 2014.

*ad* [6]: The few ‘more general’ arguments that are added are arguments against *any* conception of place, often characteristically couched in a dilemmatic form (e.g. ‘if place exists, it is either a body or an incorporeal; but both the notion of body and that of an incorporeal have been shown to be problematic; hence also the notion of place is problematic’), are taken, once again, from the familiar arsenal of Pyrrhonian scepticism.

*ad* [7]: In conclusion, the sceptic is said to be ‘confused’ by the arguments (i.e. by the arguments proper, *contra*), but he is also ‘put to shame’ by the *enargeia*. Note that the two verbs used – ἐντρέπουσι (said of the arguments) and δυσωπεῖ (said of the *enargeia*) – have a rather similar meaning and both imply the sceptic’s confusion or being put to shame.<sup>13</sup> This negative formulation is apparently used to make clear that the ‘evidence’ on the one hand and the ‘arguments’ on the other ‘defuse’ and neutralize each other. The sceptic does not ‘assent’ to either the *enargeia* or the arguments against it but is forced by each of the two to withhold assent from the other alternative. On the interpretation of this concluding section in general, see below, pp. 210–11.

We may conclude, then, that the account of place in *PH* 3 presents us with a neat sequence of three ‘waves’ of sceptical attack: first we get a specific set of arguments defusing the considerations based on the supposed *enargeia* of the *existence* of place; then we are presented with the more varied *ad hoc* arguments against the conceptions and definitions of the two main theories about the *nature* of place (the Stoic and the Aristotelian) – that is, moving from the question *whether* place is to the question *what* it is – and we end up with a brief section which contains merely negative considerations which are neither opposed to specific arguments nor to specific definitions, but which are meant to show that *any* attempt to define place is bound to founder. At least in the case of the first two ‘waves’ the overall structure is familiar: arguments, or quasi-arguments, from *enargeia* and definitions of place apparently based on *enargeia* are pitted against philosophical critique. The third ‘wave’ offers only negative considerations, but perhaps here as well the counterbalancing positive considerations are supposed to be supplied in thought from what precedes (arguments for the existence of place and definitions). Anyway *epochē* is the inevitable and explicit overall conclusion. The individual arguments often exhibit the dilemmatic (or trilemmatic, etc.) structure familiar from sceptical dialectic in general. Concentrating on just the Stoics and Aristotle allows Sextus to cover the two main types of theories of place that were relevant in his days; in this

<sup>13</sup> Compare the use of δυσωπεῖν in *PH* 3.66–7 to describe the effect of the famous reply by one of the Cynics to the arguments against the existence of motion: he just stood up and walked, ‘thus showing by his action and by *enargeia* that motion is capable of real existence’.

sense his treatment of the subject is pretty exhaustive. The arguments used to criticize the two dogmatic schools may well go back to the interscholastic debate between Stoics and Peripatetics. The anti-Stoic arguments, at any rate, have a clear Aristotelian colouring. The anti-Aristotelian arguments may also owe something to discussions within the early Peripatos, of which we find traces in the fragments of Eudemus and Theophrastus. Aristotle himself appears to be the ultimate source of the examples of the *enargeia* of place that are being provided. I will revert to this later (pp. 200–4).

### Sextus, *M* 10.1–36: the argument and some comments

The argument of Sextus *M* 10.1–36 can be laid out as follows:

- [1] *M* 10.1–5: This introduction claims that the sceptical investigation of place is incumbent on us, because it is commonly believed that body ‘is contained in place or moves in place/space’ (ἐν τόπῳ περιέχεσθαι ἢ κατὰ τόπον φέρεσθαι); we are next presented with the main determinations and definitions of spatial concepts proposed by Epicurus and the Stoics.<sup>14</sup> The void, it is claimed, has been discussed elsewhere. Here we will concentrate on *topos* and *chōra* (which is linked with *topos*). If we will manage to induce doubt about these two concepts which are ‘the more evident’ (*prodeiotera*) and somehow generally accepted ones, the less evident conception of the void will be in even greater danger.
- [2] *M* 10.6–12: Now that the *noēsis* of place has been explained, we must consider the arguments on both sides and reach suspension of judgement.<sup>15</sup> We begin with (*M* 10.7–12) the considerations which lead us to think that place exists.
- [3] *M* 10.12–19: Counter-arguments against the considerations of *M* 10.7–12.
- [4] *M* 10.19–23: We must now move on to the sceptics’ arguments (τὰ ἀπὸ τῆς σκέψεως), starting (*M* 10.20–23) with the arguments against the conception of place as a container (*hypodektikos*).
- [5] *M* 10.24–36: There follows a rather elaborate account of, plus attack on, the conception of place as a surrounding something (*periektikos*); the conclusion is, rather abruptly and straightforwardly, that ‘we have abolished (ἀννῆράκαμεν) place’.

<sup>14</sup> I am not going to discuss these definitions as such here. There is an excellent discussion of the Epicurean terms and their applications in Long & Sedley 1987: 28–31. A different interpretation, partly following Solmsen, has been proposed by Inwood 1981. On the Stoic definitions in our various sources, see Algra 2003.

<sup>15</sup> I suggest that κρατύνεσθαι in 10.7 should perhaps be translated ‘reach’/ ‘obtain’ rather than ‘strengthen’ (Bury).

*ad* [1]: In *M* 10 there is no equivalent to *PH*'s introductory section on broad (*en platei*) and strictly defined (*pros akribēian*) place, although the distinction itself, and the assertion that the sceptical investigation only concerns place in the narrow and proper sense, crop up later on (10.15) in the course of the critique of the initial arguments for the existence of place. Instead we are offered an introduction (*M* 10.1–5) on the *noēsis* of place, and its relation to 'room' (*chōra*) and 'void' (*kenon*).

Note that the two main conceptions of place to be discussed by Sextus in the course of his account – place as a surrounder and place as an extension – are already implicit in the phrases 'being contained' (περιέχεσθαι) and 'moving through space' (κατὰ τόπον φέρεσθαι) in 10.1.<sup>16</sup> Nevertheless, this introductory section refers only to the views and definitions of Epicurus and the Stoics. The explanation is, presumably, that it is only in their theories that the conceptual articulation of, and relation between, *topos*, *chōra* and *kenon* play any role (as is well known Aristotle denied the existence of void, and the concept of *chōra* plays no role in his theory), so presumably it is only for their theories that he (or his intermediate source) could find these sets of definitions in his sources. Conversely, it appears that he (or his intermediate source) found the information he provides on Aristotle in [5] more or less en bloc in the sources too. So, ultimately, the structure of this chapter appears to be very much determined by the nature of the available source material on Aristotle and the Hellenistic philosophers respectively.

The collocation of the Stoics and Epicurus may surprise at first sight, since space has a completely different ontological status in their respective theories: for Epicurus space (*anaphēs phusis*) is a second independent constituent of the universe, next to the atoms; for the Stoics the various subspecies of space are *asōmata* which do not exist at the same level as the corporeal. Yet from the point of view of what we might call the 'morphology' of space and place – Sextus' organizing principle in these passages – they are surely comparable. Both conceive of place and space as a separate three-dimensional extension and both see it as what Sextus calls *hupodektikos*: according to the Stoics it is a *diastēma* which is capable of being occupied; Epicurus in the *Letter to Herodotus* (40) speaks of that in which bodies are and through which they can move. I can see no good reason to assume that Sextus more or less projects the Stoic definitions onto Epicurus' theory, as has been argued by Inwood.<sup>17</sup> For one thing, the different way in which the Epicurean definitions are being presented does not suggest that Epicurus is being tarred with the same brush as the Stoics. For another, the

<sup>16</sup> Burnyeat [1984] 1997: 106, n. 19 claims that 'Sextus refutes the Stoics separately at *PH* 3.124–30 and in the larger work confines himself to the mere mention at *M* 3–4; in both discussions of place his main target is Aristotle.' This does not appear to be correct: the Stoic (*cum* Epicurean) view is present as an alternative view throughout the account of *M* 10 and has a separate refutation in section [4].

<sup>17</sup> Sextus' alleged misrepresentation of the Epicurean theory of place and space is a central element in Inwood 1981.

description of Epicurus' position given by Sextus is consistent with the evidence to be found in Epicurus or Lucretius.

Sextus rounds off this introductory section by claiming that if *topos* and *chōra* (the latter being in fact just a species of the former) are shown to be questionable concepts, they will, so to speak, take the related concept of void down with them (συναπορηθήσεται καὶ ἡ περὶ τοῦ κενοῦ σκέψις), since the existence of *topos* and *chōra* is more evident and a matter of quasi-universal agreement (προδηλοτέροις . . . καὶ παρὰ πᾶσι σχεδὸν ὁμολογουμένοις) – presumably what is meant is: in everyday thinking and speaking – whereas the concept of void is 'less evident' (περὶ ἁδηλοτέρου πράγματος) from the very start.

The section containing the Stoic definitions in *M* 10.3 neatly parallels the passage in *PH* 3.124, and it is clear that Sextus was working with the same *Vorlage* or that he was using the text of *M* 10 as an example in *PH* 3, or the other way round. Can we be more specific? There are two relatively insignificant points at which the version of *M* 10.3 is more elaborate than its counterpart in *PH* 3.<sup>18</sup> These 'additions' in *M* 10 are so insignificant that it seems more likely that *PH* 3 offers a trimmed-down and 'edited' version of the original (which was either the version of *M* 10 or like the version of *M* 10) than that the original was the version of *PH* 3 or like the version in *PH* 3, and that Sextus in *M* 10 consciously added these trivial elaborations. This is perhaps also what one would expect in a case where *hupomnēmata* and a *hupotupōsis* reproduce the same material.

*ad* [2]: This section offers what is to a considerable extent a parallel to section [2] of *PH* 3, although the wording is different: there is a fuller version of the list of what in *PH* are presented as considerations from *enargeia* which, as we saw, are basically derived from Aristotle; yet the term *enargeia* is here not used and the considerations are all couched in the form of *arguments*. The list is more elaborate than its counterpart in *PH* 3 in various respects: the considerations are given more fully and there are more examples. A fuller comparison between the two parallel sections is offered below (pp. 200–4), leading to the cautious suggestion that the version of *M* 10 is the original one, or closer to the original one, whereas *PH* 3 offers an edited and abbreviated version.

*ad* [3]: Also the refutation of the arguments from [2] in this section is more elaborate than its counterpart in *PH* 3. The reference to the difference between 'broad' and 'narrow' places is interwoven into the general questioning of some common ways of speaking about place as question-begging. The argument from natural motion is not just refuted as question-begging, but an alternative explanation is provided: there may be no naturally 'light' bodies; the upward 'natural motion' of some may be due to their being 'driven up by compulsion', probably a

<sup>18</sup> First, in *M* 10.3, after νῦν ὃν καλοῦντες τὸ σῶμα, Sextus adds the words καθὼς καὶ ἐκ τῆς μεταλήψεως τῶν ὀνομάτων ἐστὶ συμφανές. Secondly, at *M* 10.4 instead of the absolute genitive ἐνίων χώραν εἰπόντων εἶναι τον τόπον τοῦ μεγάλου σώματος κτλ. of *PH* 3, there is a separate main clause, explaining, in addition, by means of an example in what sense *topos* differs from *chōra*.

reference to the alternative theory of weight of Strato of Lampsacus.<sup>19</sup> The reference to Hesiod is now criticized along different lines: it is not (as in *PH* 3) the questionable status of the poet as philosophical witness that is at stake, but the (un)tenability of his actual claim that space (*chaos*) ‘came to be first’. Here again, I think it is slightly more likely that the more general argument of *PH* replaced the more specific argument of *M* rather than the other way round.

*ad* [4]: In sections [4] and [5] we are given what are called arguments ‘from the sceptics’ or ‘from the sceptical tradition’ (τὰ ἀπὸ τῆς σκέψεως) against the two main conceptions of place: place as a container (*hupodektikos*) and place as a surrounding something (*periektikos*) respectively. As against the former, we are once again, as in the account in *PH* 3, offered some arguments turning on the inconceivability of an independent three-dimensional extension, couched in the form of a supposedly exclusive dilemma: such an extension must be either body or void, but neither possibility is feasible. For if it is body, place, *qua* body, will be in a place, and so forth, *ad infinitum* – which seems to be a version of Zeno’s paradox of place (Aristotle, *Ph.* 4.209a23). The other horn of the dilemma (representing the identification of place with void) is countered with a version of the third argument of section [4] of the account in *PH* 3: on the approach of a body, such a void must either remain, or move away or perish; and all three alternatives prove to be untenable.

*ad* [5]: This section (on Aristotle) differs from the previous one (on the Stoics) in offering not only a critique but also an exposition (i.e. of the Aristotelian position). Within the context of *M* 10 this makes sense, because the Stoic-cum-Epicurean position has been expounded earlier, in [1], whereas the Peripatetic alternative has not. This discussion plus critique of Aristotle’s position is far more elaborate than we find in the corresponding section [5] of the account in *PH*. It consists of three main parts. First, we get a (strangely garbled) version of the *tetralemma* which structured Aristotle’s dialectical discussion of place in *Physics* 4 (*M* 10.24–9). Next (10.30–2) we are given a rather straightforward account of Aristotle’s own position, including the view that the heaven is not in a place (10.30–2). On these first two parts, and the way in which they relate to the text of Aristotle’s *Physics*, see further my comments below (pp. 200–10). The third part (10.33–6) criticizes the Aristotelian position. It does so, first, by introducing the rather odd objection that on the basis of his own views Aristotle should have said that the ‘first god’ is the place of the heavens; but that this either contradicts his own view that there is nothing outside the heavens (i.e. if we envisage god to be outside the heavens) or leads to the strange conclusion that god is the place of

<sup>19</sup> See Strato frs. 50a–d in the edition of Sharples 2011. Bett 2012: 84, n. 8 remarks that ‘it is not clear why this [argument] is supposed to put into question the existence of place’. It does not do so directly, of course, but it does defuse the argument which claims that the existence of place follows from there being *natural* places, viz. by claiming that there *are* no natural places. In Aristotelian physics natural places are linked to the formal (or final) cause which regulates the natural motions of the elements: elements by nature strive to be *in a particular place*. In the more mechanistic view of Strato this formal cause is replaced by an ordinary moving cause: the elements do not strive to be anywhere; they have just been pushed and squeezed to wherever they happen to be.

everything else (i.e. if god is conceived of as the ‘limit’ of the heavens). Of course all this is based on a distortion of Aristotle’s thought. The first god or prime mover is neither outside the heavens in any physical or spatial sense (according to *Metaph.* 12.1073a4–6, his eternal οὐσία is κεχωρισμένη τῶν αἰσθητῶν and μέγεθος οὐδὲν ἔχειν ἐνδέχεται), nor is he the ‘limit’ of the heavens. And even if he were, this would still not make him ‘the place of everything else’ in any proper sense, for he would not be the *inner* limit of any *surrounding* body.

Sextus continues his critique (10.34) by claiming that place as a surrounding limit would have to be either corporeal or incorporeal, but that both options lead to difficulties – the former because place would be a body and hence itself in place, the latter because place would then turn out to be a surface (ἔσται ἐκάστου σώματος τόπος ἐπιφάνεια). This, Sextus adds, is absurd (we may add that it is also precisely what Aristotle had in mind). The problem signalled by Sextus appears to be captured in the combination σώματος . . . ἐπιφάνεια. A surface is not dimensionally equal to the emplaced body – an objection also raised by Theophrastus (fr. 146 FHSG) and often repeated in ancient and medieval discussions of Aristotle’s theory. Finally (10.35–6) Sextus attacks the allegedly Aristotelian view that the heaven is ‘in itself’ or its own place.

Note that there is no separate section containing ‘general’ sceptical arguments (as an equivalent to section [6] in the account in *PH* 3). In so far as such arguments are used, they are integrated into the critical discussion of the views of Aristotle and the Stoics.

The conclusion is brief and abrupt: ‘now that we have abolished (ἀνηρήκαμεν) place, let us move on and consider whether any of the existing things can move in place’. See on this conclusion my remarks below (pp. 200–11).

We may conclude that the account of place in *M* 10 differs from its counterpart in a number of not insignificant details. For one thing, it is more elaborate in the parts where it overlaps with the account of *PH* 3 (i.e. in its rendering of the Stoic definitions and in the initial list of considerations suggesting that place exists). Also, it features elements that are absent from the account of *PH* 3: a separate introduction on the conception (*noēsis*) of *topos* in relation to *chōra* and *kenon*, information about Epicurus, a large chunk of (garbled) material on Aristotle.

Where the two accounts overlap, Sextus is clearly using existing surveys: the Stoic definitions in what I labelled section [4] in the account in *PH* 3 and in section [1] of the account in *M* 10 are paralleled in doxographical texts (Aëtius, Arius Didymus); and as I will show in more detail in the next section, the initial arguments for the existence of place in what I have labelled sections [2] in both accounts derive from an intermediary source which is itself ultimately based on [chapter 1](#) of Aristotle’s account of place in *Physics* 4. In both cases it seems on balance slightly more likely that *PH* 3 offers an abbreviated and edited version of the common source (or of the

version of *M* 10).<sup>20</sup> Moreover, we have seen that large parts of section [5] of the version of *M* 10 have no counterpart in the version of *PH* 3. Here again, it is likely that Sextus used one and the same source (on which see pp. 204–10 below) but abridged it in the *PH* 3 version, replacing the circuitous (and in the end flawed) summary of the dialectical inquiry in *Physics* 4 with a straightforward description of Aristotle's definition of place.

Not only such abridgements but also the fact that *PH* 3 is in some ways more elegant and more systematic may be owing to the difference in nature between the two treatises: in the account in *PH* 3 Sextus is trying to show in a neat and systematic way how Pyrrhonism works in relation to the subject of place, whereas in *M* 10 he rather appears to try to be as complete as possible in his broadside attack against dogmatic physics. Accordingly, the section in *PH* 3 shows more signs of authorial intervention, whereas the way in which the section in *M* 10 is organized appears to be more dependent on (the structure of) the available sources. Thus, in *PH* 3 the separate opening section on the distinction between broad and narrow conceptions of place clearly serves a systematic purpose in so far as it marks off the proper subject of the whole chapter, whereas the account in *M* 10 only mentions it halfway, and in passing (in 10.15). By contrast, the opening section of the account in *M* 10, purportedly on the *noēsis* of place, is not on the *noēsis* of place in general at all (for Aristotle is not covered), and hence it does not serve any general purpose for the chapter as a whole but rather appears to contain what happened to be there in terms of sets of Stoic and Epicurean definitions of place, space and void. Finally, also the fact that the 'more general arguments', namely the arguments that are not 'parasitic' on particular conception or definitions of place, are relegated to a separate section in the account of *PH* 3 may be seen as a form of 'tidying up'.

Despite these differences, the overall structure is similar to that of *PH* 3 (with the first 'wave' of sceptical attack represented by [2] and [3] and the second 'wave' by [4] and [5]). Also the philosophical content of the account of *M* 10 is similar to that of its counterpart in *PH* 3: the same basic phenomena (with one exception) are adduced in support of the existence of place, the same type of sceptical counter-arguments are used on the other side. The same two main conceptions of place are discussed: place as a surrounding something and place as an underlying three-dimensional extension. Only the conclusion of the account in *M* 10 seems at first sight

<sup>20</sup> See above, p. 196, for a comparison between the ways in which the two texts render the Stoic definitions; see further the next section for a comparison between their presentations of the arguments deriving from Aristotle, *Ph.* 4.1.



to be different in not referring to some kind of equipollence and in being more ‘dogmatic’, but see on this my remarks in the final section of this chapter.

### The account of Sextus, *M* 10.119–35 and Aristotle’s *Physics* 4.1

That the accounts in *PH* and *M* 10 are in various respects heavily indebted to Aristotle’s account of place in *Physics* 4 has been noted by others before. The most detailed examination of the relation between Sextus and Aristotle on this particular point is to be found in Julia Annas’ 1992 paper ‘Sextus Empiricus and the Peripatetics’.<sup>21</sup> Yet, there is still room for further clarification, so let us take a fresh look. The sections of *Physics* 4 which bear a close resemblance to the accounts in Sextus are *Physics* 4.1, 4.4 and 4.5. Let us start with *Physics* 4.1.

The first part of *Ph.* 4.1 (208b1–209a2) sketches the initial *phainomena* on the basis of which one may assume place to be a reality. In Aristotle these *phainomena* are the starting point of a dialectical inquiry. They are followed by a number of *aporiai*, which professedly make us doubt not just *what* place is, but even *whether* it is at all.<sup>22</sup> Yet these *aporiai* are not definitive: they have to be solved in the course of the subsequent inquiry. At the same time, as many as possible from the initial *phainomena* (not necessarily all of them) have to be saved. In Sextus, the Aristotelian *phainomena* are of course embedded in a quite different argumentative context. They are opposed by counter-arguments, and this opposition should in the end, as we all know, lead to equipollence and suspension of judgement.

The following items adduced by Aristotle recur in a slightly different form in Sextus, most of them both in the account of *PH* 3 and in the account in *M* 10 (though each time in a different order):

- [A1] the principle that all things that are, are somewhere, that is, in a place (*Ph.* 4.208a29–30); taken up later in a slightly more specific form: every sensible body is in a place (*Ph.* 4.208b29);
- [A2] the phenomenon of replacement (*antiperistasis*; *Ph.* 4.208b1–8);
- [A3] the phenomenon of natural motion (*Ph.* 4.208b8–28);
- [A4] the fact that there are ‘parts and kinds of place’ (τόπου μέρη καὶ εἶδη), that is, natural directions such as ‘up’ and ‘down’ (*Ph.* 4.208b13, actually part of the discussion of natural motion);

<sup>21</sup> Annas 1992: 217–22.

<sup>22</sup> On the dialectical structure of *Ph.* 4 in general, see Algra 1995: 153–82. On the argumentative structure of *Ph.* 4.1 and 4.4 respectively see also Morison 2002: 11–53 and 103–32.

- [A5] the fact that the idea of a primary and independent place is as old as Hesiod (*Ph.* 4.208b30–4);
- [A6] the fact that place appears to have an amazing power (θαυμάστη δύναμις): it can exist without everything else, but all other things need it; it is not destroyed when its contents vanish (*Ph.* 4.208b34–209a3).

In *PH* 3.120–1 these items appear to have been recycled (i.e. taken over in a recognizable form, despite some changes) into the following list of elements from experience, or ‘evidence’ (*enargeia*), as supposedly adduced by those who want to defend the concept of place. Who will deny that place exists, they say, seeing that

- [P1] there are parts of place (= [A4]);
- [P2] where (x) was, there we now see (y): the evident phenomenon of *antiperistasis* (= [A2]);
- [P3] there is a different place for light and heavy elements respectively (= [A3]);
- [P4] the ancients said ‘Chaos came to be first’, because chaos is place, so called because of its being *chôrêtikon* (= [A5]);
- [P5] if there are bodies, there is place (= [A1]);<sup>23</sup>
- [P6] if there is ‘that by which’ (*to huph’ hou*) and ‘that out of which’ (*to ex hou*), there must also be ‘that in which’ (*to en hōi*) (in this form not in Aristotle).

In *M* 10.6–12 the list recurs, in a slightly more elaborate form. We are told that place is assumed to exist for the following reasons:

- [M1] if there are parts of place, place exists (= [A4]);
- [M2] if where (x) was, there we now see (y), place exists (= [A2]);
- [M3] if there are bodies, there is place (= [A1]);
- [M4] if there is a different place for light and heavy elements respectively, place exists (= [A3]);
- [M5] if there is ‘that by which’ (*to huph’ hou*) and ‘that out of which’ (*to ex hou*), and ‘that because of which’ (*to di’ ho*), there must also be ‘that in which’ (*to en hōi*) (in this form not in Aristotle);
- [M6] place exists, because the ancients said ‘Chaos came to be first’, because chaos is place, so called because of its being *chôrêtikon* (= [A5]);
- [M7] if we abolish all things in imagination, place is what is left (= [A6]).<sup>24</sup>

<sup>23</sup> This claim is not made in strictly this form in [A1], but it can be easily inferred from its contents.

<sup>24</sup> On [M7] Annas 1992: 219, n. 39 writes: ‘Sextus adds another point which is not in Aristotle: we can imagine away body, but not the place that the body is in.’ It is true that the idea of ‘thinking away’ is not in Aristotle’s text, but for the rest I think the resemblances are sufficiently close to link [M7] to [A6] in Aristotle’s text.

Clearly the order in which the items are being presented differs in *PH* and *M*. Besides, as Julia Annas already noted, the version of *M* is more fully worked out: in [M2] we have examples that are absent from [P2] (Plato replacing Socrates, different liquids replacing each other in a jar); [M5] is a fuller version of [P6], with the reference to the final cause (*to di' ho*) added to the references to the material and motive causes; moreover in [M5] all the causes are identified by name (*hulē, aition, telos*) as well, with the interesting peculiarity that *more hellenistico* only the motive cause is actually labelled 'cause' (*aition*); finally, item [M7] is altogether absent from the version of *PH* 3. In addition, the phrasing is more precise and more uniform: wherever possible ([M1]–[M5]) the arguments are phrased as syllogisms of *modus ponens* form ('if *p* then *q*; but *p*, therefore *q*'); in *PH* we find this only in the case of the last two items ([P5] and [P6]). If, once again, we ask the question which of these two versions is the original one, or (assuming that they both depend on a common source) which of them comes closest to the original, we may note that there are two reasons to assume that the version of *PH* 3 is an abridged and edited version of the version in *M* 10 or of the common source. First, as we noted, in *PH* 3 the first four items in the list are presented together in one sentence, with every item introduced by a present participle ('who would say that there is no such thing as place, seeing that ... noticing that ...', etc.). This seems typical of the style of someone who is summarizing. One can hardly imagine, by contrast, that this is how they were presented in the original source. Secondly, one can explain all the missing elements in the version of *PH* 3 by a desire for brevity (thus [M7] could be left out, because it was basically already covered by the argument of [M6]; and [P6] can well do with two causes instead of three). But it is far less likely that Sextus found the shorter version in his source and added elements such as the final cause, the names of the causes, and the term *aition* in [M6] and the argument [M7] on his own accord.

But let us leave the question of the relative chronology for what it is and turn instead to the relation between these two accounts and what is in their ultimate source, the first chapter of Aristotle's *Physics* 4. Perhaps the most intriguing aspect of the two lists in Sextus is the fact that whereas all other items can without too much trouble be linked to elements of Aristotle's account, [P6], recurring in an enlarged form as [M5], does not appear to have an immediately evident counterpart in *Physics* 4.1. What is more, it is a strange and unexpected element, for various reasons. First of all, the systematic application of this kind of prepositional expression to denote various causes – either in a (middle) Platonic or in an Aristotelian setting – is

a phenomenon unknown in sources earlier than the late Hellenistic and early Imperial periods. The Aristotelian-looking list which we find in Sextus (in comparable Platonic lists the paradigm of the Forms is added as the *kath' ho*) in some respects resembles the lists we find in such authors as Aëtius, Galen and Porphyry as quoted by Simplicius.<sup>25</sup> Secondly, the inference from the existence of *to huph' hou*, *to ex hou*, and *to di' ho*, to the existence of *to en hōi* seems odd, when seen from an Aristotelian perspective, especially if we read it as the inference from the existence of certain causes to the existence of place as *another* cause, for place is emphatically denied any causal status by Aristotle (*Ph.* 4.209a20–2), although he does reserve a role for it in the explanation of (natural) motion. Accordingly, we do not find the *en hōi* in other Aristotelian lists of causes.<sup>26</sup> But even if we do not take [M5] and [P6] to imply that place is a *cause*, the inference remains a bit puzzling. For why would the existence of place follow from the existence of causes? The probable answer is that the (presumably late Hellenistic) intermediary source thought the inference was a different one. After all, as we noted, he only labelled the efficient cause as a 'cause' (*aition*) properly speaking. So he may have seen the list as a list of concepts required for the explanation of motion and change, without thereby crediting all of the items with full causal status. In that case the addition of place to the original Aristotelian set of four becomes more palatable. Indeed, if the list is interpreted in this way, we may even endow it with a genuinely Aristotelian provenance. First of all, we may regard the enumeration of *to huph' hou*, *to ex hou* and *to di' ho* as a scholastic systematization of Aristotle's account of the causes in *Physics* 2, esp. 194b24–195a3 and 198a25ff., where in fact we find instances of these prepositional formulae (e.g. 194b24: *to ex hou*), though not the full list. We may then interpret the addition of an inference to the *en hōi* as introducing not another cause, but just another necessary key concept in the explanation of motion. As such it may well have been motivated by Aristotle's statement at the beginning of

<sup>25</sup> Cf. Aëtius 2.3; Galen, *Caus. Procat.* (CP) 6.67, and 6.71; *De Usu Part.* (UP) 12.464.6–465.3; 12.465.3–13; 471.15; *Sympt. Diff.* 1.47.14–18; Porphyry as quoted by Simplicius, in *Ph.* 10.25–33. For the use of 'prepositional metaphysics' in Varro, Seneca, middle Platonism and early Christian thought, see Theiler 1930: 15–34; see further Moraux 1984: 763–4; Hankinson 1998: 15, esp. n. 68. On its use in Aëtius, on the Peripatetic and Platonic background, and for further references see Mansfeld 2002: 384–92.

<sup>26</sup> It does occur, by contrast, in the list in Seneca, *Ep.* 65; there, however, it does not refer to place, but to the *enulon eidos*; it also occurs in Proclus, in *Ti.* 1.357.15 where, understandably in a context dealing with the receptacle of Plato's *Timaeus*, it has the same designation as the *ex hou*, viz. matter. As far as I know, the only philosopher who is credited with the idea that the *en hōi*, taken as place, is a cause or principle (in this case next to the *ex hou*, the *huph' hou* and the *poiōi*), is the eclectic Potamo of Alexandria (Diogenes Laertius 1.21), a contemporary of the emperor Augustus.

*Physics* 3, that ‘there cannot be change without place, void and time’ (200b21). This claim is part of a programmatic statement which introduces, roughly, the contents of books 3 and 4: change, and the subjects ‘next in order’: the infinite, place and time. Just as we need an account of the causes in order to explain nature (i.e. change) – an account which was given in book 2 of the *Physics* – so we need an account of place and time. The inference of [P6] and [M5] may thus have been coined as an inference which is Aristotelian in spirit, distilled somehow from the text of the *Physics*, and formulated in the terminology of late Hellenistic or early Imperial philosophy.

Whether or not I am correct in suggesting that the inference of [P6] and [M5] ultimately goes back to *Physics* 3.1, it is clear that someone at some point added it to a list of items which for the rest derives, as we saw, from *Physics* 4.1. I do not think it is likely that Sextus himself was responsible for the assemblage of this material from Aristotle, or that he had Aristotle’s text before him when writing his accounts of place. I am not aware of any traces elsewhere in his work of a *direct* dependence on the *Physics*. Thus, as Julia Annas already noted, Sextus’ own discussion of time is not directly related to Aristotle’s discussion in *Physics* 4, although it contains Aristotelian elements,<sup>27</sup> and the third subject discussed in *Physics* 4, the void, hardly receives any attention from Sextus at all. Moreover, the elements from Aristotle’s *Physics* 4 which did influence Sextus’ account of place seem to have come through in a ‘filtered’ form, with additions and changes, the addition of [P6]/[M5] being a case in point. Although nothing can be proved, all this strongly suggests that this material reached Sextus through one or more intermediary sources of a handbook-like character. As we shall see in the next section, there is more in the account of place in *M* 10.119–35 to support this view.

### The account in Sextus, *M* 10 and Aristotle’s *Physics* 4.4 and 4.5

There is another section, *M* 10.24–36 (this time there is no counterpart in the account of *PH* 3), which seems to go back (whether directly or indirectly, remains to be seen) to Aristotle’s account in *Physics* 4. It contains the exposition plus refutation of Aristotle’s conception of place (item [5] in the overview above, p. 194). After having dealt with conceptions of place which take place to be a container (*hupodektikos*), Sextus now turns to the conception of place as a surrounding something (*periektikos*), namely the

<sup>27</sup> For which see Bobzien, in this volume, pp. 291–2.

Aristotelian position. The basis for his account appears to be provided by the argument of *Ph.* 4.4.211b7–212a8 (reproduced in *M* 10.24–9) and by some parts of *Physics* 4.5 (taken up in *M* 10.30–3).

Let us first have a look at *M* 10.24–9, which briefly reviews various candidates for the role of place. What Sextus offers here on closer view appears to misconstrue the original *Aristotelian* argument of *Ph.* 4.4.211b7–212a8 in two ways. First of all, Sextus begins this section by claiming that *if* place is a ‘surrounder’ (*periektikos*) ‘and that which surrounds is outside of that which is surrounded’, then it must be one of four things: (1) matter, (2) form, (3) the interval in between the limits (τὸ μεταξύ διάστημα τῶν ἔσχατων) or (4) the limits themselves (πέρατα ἔσχατα). Now, the *if*-clause leaves no doubt that what is at stake is the Aristotelian conception of place as a surrounding something. But then one wonders how the consequent (‘then it must be either, etc.’) relates to this antecedent. After all, in the context of Aristotle’s discussion in *Physics* 4.4 the four candidates mentioned do not represent various possible ways of *working out* the Aristotelian position. They are rather the four conceptions of place that are conceivable *tout court*, that is, the set of possible options which constitute the material for Aristotle’s dialectical investigation. In the course of this investigation the first three candidates (matter, form, interval) turn out to be unworkable alternatives (cf. 212a3); the fourth is left as the one Aristotle eventually plumps for. What is more, in Aristotle at least two of the three rejected candidates (matter and form) are rejected precisely because they are *not* ‘outside that which is contained’, but inseparable from the emplaced body (see *Ph.* 4.212a1 on matter; 209b22–8 on both matter and form). Curiously enough Sextus subscribes to these Aristotelian arguments elsewhere in the same context (10.25 on matter; 10.26 on form), yet in 10.24 this does not keep him from introducing these candidates as possible ways of working out the notion of place as a ‘surrounder’. It appears, then, that the backbone of Sextus’ account of the Aristotelian conception of place in *M* 10 is constituted by a *tetralemma* which, to be sure, does as such derive from *Physics* 4.4, but which covers much more than just the Aristotelian position. It looks as if Sextus did not have much of a clue on how this tetralemma figured in Aristotle’s original account (i.e. not as a set of possible ways to flesh out the Aristotelian conception, but as a set of rival candidates to be eliminated).

But there is more. In Aristotle the fourth item of the tetralemma represents the candidate which will eventually be accepted: it is what in *Ph.* 4.211b8 is described, in a kind of shorthand, as ‘the limits’ (τὰ ἔσχατα), but further articulated in 212a6 as ‘the limiting surface *of the containing*

*body*’ (τὸ πέρας τοῦ περιέχοντος σώματος). Sextus, however, seems to ignore this further articulation and simply refers to this fourth item as ‘the extreme limits’ (τὰ πέρατα ἔσχατα, 10.25). He then, however, interprets this as ‘the limits of the body’ (τὰ ἔσχατα τοῦ σώματος, 10.27): the limits of the *emplaced* body rather than of the *surrounding* body or bodies. Apparently he did not see or know that this is not how Aristotle conceived of his fourth candidate, nor that the description he offers rather covers another candidate from Aristotle’s list, namely place as form. As Aristotle puts it:

Because place surrounds, we may take it to be form; for the limiting surfaces of the surrounding and the surrounded coincide. It is true, accordingly, that both place and form are limits, but not of the same thing, for the form is the limit of the object, but the place of the surrounding body. (*Ph.* 4.211b11–14)<sup>28</sup>

In line with his misinterpretation of the words τὰ πέρατα ἔσχατα, but unlike Aristotle, Sextus now rejects the fourth candidate no less than the other three and draws the preliminary conclusion that if place is *none* of these four, and no other possible candidate can be conceived of, it must be nothing (*M* 10.29).<sup>29</sup> The conclusion is only preliminary, however, for it is only at this point that Sextus introduces what we know as the properly Aristotelian view: “Yes”, say the Peripatetics, “but place is the limit of the containing body” (*M* 10.30). This means that he now introduces the Aristotelian conception of place as a new, that is a *fifth*, option, one not contained in the previous list of four. There can be no doubt that what Sextus presents us with here ultimately goes back to Aristotle’s account, but there can be no doubt either that his account thus far is crucially garbled.

What follows next (*M* 10.30–2) is a succinct account plus refutation of this Aristotelian concept of place. In the course of this further elaboration

<sup>28</sup> For an exegetical specification of the sense in which Aristotle uses the notion of ‘form’ in this context, see Alexander of Aphrodisias as quoted by Simplicius, *In Ph.* 538.14–20.

<sup>29</sup> According to Annas 1992: 219, ‘Aristotle argues *for* the fourth alternative whereas Sextus tries to knock it out of the running also.’ This is true in itself, but it is not the whole truth. It should be added that Sextus interprets this fourth alternative in a way in which Aristotle had not intended and is thus unable to see that it actually represents Aristotle’s preferred alternative. Hence the claim, Annas 1992: 220, that ‘from 30 to 36, Sextus *again* sets up *the Aristotelian definition* (which he has just supposedly destroyed along with the other three)’ (my italics) is in need of further qualification. On closer view, the Aristotelian view is introduced in 10.30 as a new, i.e. a *fifth*, possibility. A similar objection can be made against Morison 2002: 104, n. 6: ‘Sextus is particularly cunning; he accepts that if places exist, then one of the four definitions must be correct; he accepts Aristotle’s rejection of form, matter and interval but rejects Aristotle’s actual definition and infers that places do not exist at all (*M* 10.29).’

of Aristotle's position Sextus again inserts material that ultimately derives from the account of Aristotle's *Physics* 4, this time from what is currently referred to as chapter 4.5 (the division into chapters is of course not genuine). Immediately after having given the Aristotelian definition of place as the 'limit of the containing body', he goes on by claiming that on this conception of place earth is contained in water, water in air, air in fire, and fire in the heaven, while the heaven is itself not (οὐκέτι) in place (M 10.30–1). This is in fact a slightly reworked version of *Ph.* 4.212b20–2.<sup>30</sup> A few lines further on (10.32) he reverts to this issue by claiming that 'hence heaven is not existent anywhere; for that which exists anywhere both exists itself and its "where" is other than it, but heaven has no other thing besides and outside itself'. This seems to be a reworking of *Ph.* 4.212b14–16.<sup>31</sup>

In the intervening lines, as well as immediately after the second quotation, Sextus rather surprisingly claims that the heaven, though not in place and not 'anywhere' is 'in itself' (10.31): '... the heaven must be in itself and be contained within its own limits'; and 10.32: 'for this reason, as existing itself within itself it will not be anywhere'. This may be a (polemical) inference, possibly made on the basis of Aristotle's claim that the heaven is 'no longer in something else' (οὐκέτι ἐν ἄλλῳ, 212b22) in combination with his claim that 'all things are in the heaven' (ἐν τῷ οὐρανῷ πάντα, 212b17), and in that sense it may still go back, ultimately, to Aristotle's text. However, the claim as such is not in Aristotle, and could hardly be, for Aristotle himself devotes a considerable part of *Physics* 4.3 to proving that a thing cannot be in itself in any real and primary sense.<sup>32</sup> Arguably, here – as in the case of the claim (briefly discussed above, pp. 197–8) that Aristotle should have said that the first god is the place of the whole cosmos – the distortion of Aristotle's position serves a polemical purpose: Sextus is only too eager to point out that the idea of something's being in itself is absurd (10.35).

However, no such purpose can be detected behind the garbled list of dialectical options at M 10.24–9. Here Sextus does not exploit his misrepresentations in his critique.<sup>33</sup> What is more, the list of dialectical options fits particularly badly into Sextus' overall strategy; for what he needs at this

<sup>30</sup> *Ph.* 4.212b20–2: καὶ διὰ τοῦτο ἡ μὲν γῆ ἐν τῷ ὕδατι, τοῦτο δ' ἐν τῷ ἀέρι, οὗτος δ' ἐν τῷ αἰθέρι. ὁ δ' αἰθήρ ἐν τῷ οὐρανῷ, ὁ δ' οὐρανὸς οὐκέτι ἐν ἄλλῳ.

<sup>31</sup> *Ph.* 4.212b14–16: τὸ γὰρ που αὐτό τε ἐστὶ τι, καὶ ἕτι ἄλλο τι δεῖ εἶναι παρὰ τοῦτο ἐν ᾧ, ὃ περιέχει.

<sup>32</sup> His conclusion, at *Ph.* 4.210b21–2: οἱ μὲν οὖν ἀδύνατον ἐν αὐτῷ τι εἶναι πρῶτως, δῆλον.

<sup>33</sup> That they are conscious misrepresentations, meant to facilitate Sextus' criticism, seems to be suggested by Annas 1992: 221, n. 43.



point of his account is a straightforward exposition of the *Aristotelian* conception of place as a 'surrounders', as we find it in the parallel account in *PH* 3, as opposed to the Stoic-*cum*-Epicurean conception of place as an extension. Yet, as we saw, the list, though ultimately stemming from Aristotle's account, covers much more (three, in Sextus' own view four, rejected alternative options) than Aristotle's own position. If it had been Sextus' sole intention to make his attack against Aristotle as efficient as possible, one wonders why he needed this detour. I find it hard to avoid the feeling that if Sextus had really been working with the text of Aristotle's *Physics* before him, he might have come up with a more suitable selection of material and might also have avoided the rather pointless mistakes which I have noticed. I suspect, therefore, that he did not use the original text, but that the information he provides is derived from a handbook or *epitomē*. If this is the case, his ultimate source would most likely have been a Peripatetic handbook, used either directly or through a sceptical intermediary source (we may recall, once again, that he labels the arguments at issue as 'coming from the sceptical tradition' (τὰ ἀπὸ τῆς σκεψέως, *M* 10.20)).

The assumption that Sextus used an abridged version of Aristotle's account would explain a number of puzzling features in his account. First, it would explain that the original dialectical context of the list of four candidates was not taken into consideration (after all, the source may simply have claimed that 'According to Aristotle place must be either . . . etc.'). It may also explain how Sextus could misinterpret the description of the fourth candidate: presumably his source followed Aristotle's initial description and referred to this candidate by the words τὰ ἔσχατα. Sextus himself was apparently unaware of the fact that the subsequent further articulation of the Aristotelian conception as 'the limit of the surrounding body' actually represented this very same view. Moreover, if the source presented this abstract from *Physics* 4 as 'Aristotle's view of place' *vel sim.*, we can also see why Sextus copied it more or less *in toto* (even if it did not really fit) in the 'slot' he had reserved precisely for a description of this conception of place as a surrounding limit. Finally, I think even the polemical inference that the heaven is 'in itself' becomes more easily understandable if we assume that Sextus was working with some outline account (which merely claimed that the heaven is not in something else as in a place) rather than with the actual text of *Physics* 4 (with its denial that a thing can be 'in itself' in the primary sense). Note, incidentally, that I am not basing my hypothetical reconstruction on the mere fact *that* Sextus misrepresents the text of Aristotle, but on the particular *way in which* he does so in the case of the list of dialectical options. Note also that I am not

positing an intermediary Peripatetic source which was as garbled as Sextus' account, but simply one whose account of place was sufficiently abridged for Sextus (or his source) to misinterpret it, in the absence of any fuller knowledge of the contents of *Physics* 4.

Some may find these suggestions suspect, because they recall the phantoms of *Quellenforschung* and invoke the rather elusive tradition of doxographical and scholastic summaries. However, there is no reason to be overly sceptical in this respect. We know that exegetical summaries of (parts of) Aristotle's *Physics* were around. At an earlier stage, and on a larger scale, a work like the *Physics* of Eudemus of Rhodes had already been basically a paraphrasing exegesis.<sup>34</sup> But we know that in the early Imperial times smaller-scale *epitomai* were around as well; witness the work of Nicolaus of Damascus (now extant only in a further abridged Syriac version) and of Arius Didymus (see esp. frs. 1–7 Diels). For an example of how in such contexts sections of Aristotle's original text could be integrated into a doxographical summary, one may compare the lemma on Aristotle in the section on the void in what Diels printed as Stobaeus' version of Aëtius 1.18.6 (*DG* p. 316), but which, as Diels (*app. crit.* ad loc.) himself already suspected probably derives from Arius Didymus.<sup>35</sup> Such examples show that even without consulting the original text of Aristotle's *Physics*, an author like Sextus could have at his disposal abridged paraphrases which offered much more than incidental doxographical tidbits.

Finally, the example of Arius Didymus (especially the *epitomē* of Aristotelian ethics) shows that such summaries could very well make use of Stoicizing, or otherwise 'contemporary', philosophical vocabulary. This provides a possible explanation for the use of the prepositional formulae, and the restricted use of the term 'cause' (*aition*) in [M 5] and [P6] as well. This being so, it is only economical to suppose that both the information ultimately deriving from *Physics* 4.1 and that deriving from *Physics* 4.4 and 4.5 reached Sextus through the same intermediary source. This, in its turn, supports the suggestion (see above, p. 199) that the reason why the section reflecting *Physics* 4.4 and 4.5 in *M* 10 is absent from *PH* 3 is not so much that Sextus used a different source there (for there he *does* reproduce the material going back to *Ph.* 4.1), but rather that he preferred to leave it out for the sake of brevity (and perhaps clarity).

<sup>34</sup> It appears to have been based on a lecture course on Aristotle's *Physics*, for it follows the order of subjects in Aristotle, but it contained nothing that corresponds to Aristotle's seventh book. For some general characteristics of the work, see Gottschalk 2002.

<sup>35</sup> On the ascription see Runia 1996a: 373–4; repr. in Mansfeld & Runia 2009: 324–5.

In his overview of Aristotelian philosophy in the Roman world Hans Gottschalk signalled a general lack of interest in Aristotle's school writings, outside a small circle of devoted followers.<sup>36</sup> If my diagnosis of the provenance of Sextus' garbled account of elements from *Physics* 4 is correct, it would be consistent with what this same author remarks about Sextus, namely that 'Sextus mentions the works of Aristotle and his followers quite often ... but his work shows no deep study of their writings and his knowledge of them seems to come from handbooks.'<sup>37</sup>

### **The nature of Sextus' scepticism and ancient conceptions of place**

I would like to end this chapter by drawing out some more general features of Sextus' scepticism vis-à-vis the conceptions of place he discusses. This I will do by addressing two questions. The first concerns the nature and scope of Sextus' conclusions. The second question deals, roughly, with what has become known as the question of 'insulation'.

We have seen that the accounts in *PH* 3 and *M* 10 differ in a number of not insignificant details, but that their overall structure is similar: the same basic phenomena are adduced in support of the existence of place, the same types of sceptical counter-arguments are used on the other side. When dealing with individual conceptions of place, we are in both cases dealing with the presentation and refutation of two main conceptions of place as a surrounding something and place as an underlying three-dimensional extension. In view of these similarities we may expect the conclusions of the two accounts to be similar as well. Now, as we saw, the account in *PH* 3 concludes that, faced with the opposition between (a) the force of *enargeia* on the one hand, and (b) the philosophical arguments *contra* on the other, the sceptic suspends judgement. In the conclusion of *M* 10, however, no 'counterbalancing' takes place or is even mentioned. Instead we are offered the blunt and straightforward conclusion that 'we have abolished this [i.e. place] as well' (καὶ τοῦτον ἀνηρῶκαμεν, *M* 10.36).

At first this may seem to be a surprisingly dogmatic conclusion, which is hard to square with the conclusion of the account in *PH* 3. However, that we should not simply interpret it as meaning that 'we have established that place does not exist' is strongly suggested by the way in which Sextus introduces his programme at the beginning of his account, in *M* 10.6, that is, as 'to expound the arguments on both sides and to achieve suspension of judgement on that basis'. Suspension of judgement, in other words, has

<sup>36</sup> Gottschalk 1987: 1129.

<sup>37</sup> Gottschalk 1987: 1139.

been his envisaged goal in the account of *M* 10 all along. Moreover, there are parallels for the particular use of ‘to abolish’ or ‘to do away with’ (*anairein*) which we encounter here. Although *anairein* is often used in Sextus to express the dogmatic conviction that something does not exist, hence as the opposite of ‘to posit’ or ‘to affirm’ (*tithenai*) in contexts where the sceptic is supposed to do neither the *tithenai* nor the *anairein*,<sup>38</sup> there are also contexts where Sextus has the sceptic directly oppose the dogmatists, and where the first-person plural of the verb *anairein* (‘we abolish’ or ‘we have abolished’) is used to express the sceptic’s own position.<sup>39</sup> In such a context *anairein* has a different, weaker, force: it indicates the defusing of a position *as argued by a dogmatist*, that is, *in so far* as established by the arguments, definitions, and such like, which the latter adduces. This is how Sextus can say: ‘when we abolished/overthrew the Cyrenaic theory’ (ὅτε τὴν Κυρεναϊκὴν στάσιν ἀνηρούμεν, *M* 7.299) or ‘we abolish the signs falsely imagined by the dogmatists’ (τὸ δὲ ὑπὸ δογματικῶν ψευδῶς δοξασθὲν [*sc.* σημείον] ἀναιρούμεν, *M* 8.158). In the latter case he even makes clear that this ‘weak’ *anairein* (‘to abolish in so far as the opponent’s arguments are concerned’) can on the sceptic’s part be accompanied by a weak *tithenai* (i.e. to posit or affirm *without* arguments or theoretical justification) of something else, for the first part of the sentence just quoted claims that ‘we affirm the commemorative sign, which is used in ordinary life’ (τὸ μὲν ὑπομνηστικὸν σημεῖον τίθεμεν, ὧς χρῆται ὁ βίος). The sceptic, in other words, is here said to accept, or ‘affirm’ the so-called ‘commemorative’ sign as an accepted feature of everyday life, but to reject the ‘indicative’ sign as used by the dogmatists. It appears that we should interpret Sextus’ phrase ‘we have abolished’ (ἀνηρόκαμεν) in his conclusion in *M* 10.36 in this same ‘weak’ sense, and that, as a result, the conclusion here is consistent with the conclusion of the account in *PH* 3. It is a kind of shorthand which, so to speak, focuses only on the negative part of the counterbalancing procedure, namely on the defusion of one of two counterbalancing views by the evidence to the contrary.

This brings me to my second question. Does Sextus leave room for a ‘weak’ affirmation of some of the phenomena that are thought to constitute *enargeia* in speaking and thinking about place, and do our texts tell us

<sup>38</sup> Cf. *PH* 1.196: ἡ ἐποχὴ δὲ εἴρηται ἀπὸ τοῦ ἐπέχεσθαι τὴν διάνοιαν ὥς μήτε τίθεναι τι μήτε ἀναιρεῖν διὰ τὴν ἰσοσθένειαν τῶν ζητούμενων. Or *PH* 1.119: τοῦτον οἱ μὲν ἔθεσαν, οἱ δὲ ἀνείλον, οἱ δὲ ἐπέσχον περὶ αὐτοῦ. See also *PH* 2.31; 2.180; 3.23; 3.65. And also in *M* 11.111: οἱ δ’ ἀπὸ τῆς σκέψεως μηδὲν εἰκὴ τίθεντες ἢ ἀναιροῦντες ἅπανθ’ ὑπὸ τὴν σκέψιν εἰσάγοντες διδάσκουσιν.

<sup>39</sup> According to Janáček 1972: 55, this first-person-plural use only occurs in *M*, not in *PH*.

anything about the extent to which he is prepared to treat ordinary ways of thinking and speaking about place as immune from his scepticism?<sup>40</sup> The conclusion of the account in *PH* 3 (*PH* 3.13–15) suggests that there is some room here:

we may conclude that while the sceptics are put to confusion by the arguments, they are also put to shame by the evidence of experience (*enargeia*). Consequently, we attach ourselves to neither side, *so far as concerns the doctrines of the dogmatists*, but suspend judgement regarding place.

The addition of the rider ‘so far as concerns the doctrines of the dogmatists’ is significant. For it specifies the sense in which the sceptic does not attach himself to either side. In principle this leaves open the possibility that in non-theoretical everyday thinking and speaking (i.e. outside the sphere of the arguments and theories of the dogmatists) he may go by the evidence of experience and accept, in the case of place, the phenomena from *enargeia* listed by Aristotle and by Sextus himself.

On this line of thought it is only when, and in so far as, these phenomena are used as a reliable basis for, or integrated into, a philosophical theory – as they are in Aristotle, for example – that Sextus’ sceptic will refuse to attach himself to them.<sup>41</sup> One may compare similar qualifications, usually brought in by means of clauses starting with ‘in so far as ... is concerned’ (*hoson epi* ...), elsewhere in Sextus’ oeuvre.<sup>42</sup> Thus *PH* 2.95 claims that, since the criterion of truth has appeared to be unattainable, we can no longer make positive assertions ‘in so far as the statements of the dogmatists are concerned, not even about those things which are evident’,

<sup>40</sup> We thus enter the wide-ranging debate on the nature and scope of Pyrrhonian scepticism and on the scope of *epochē*, which is still going on in the wake of the seminal contributions of Michael Frede, Myles Burnyeat and Jonathan Barnes. One of the crucial questions in this debate, whether and in what sense the sceptic can have what we may call *beliefs*, is something I do not want to (and I think do not need to) address in the present context.

<sup>41</sup> As Burnyeat [1984] 1997 has shown, in so far as we may expect any kind of ‘insulation’ at all in the case of Sextus, this is not insulation according to subject matter – it is not as if scepticism affects particular areas only. The focus of Sextus’ scepticism rather seems to be on the theoretical *approach* of the opponents: their attempt to define things, consider their ontological status or causal status and to establish their relation to other entities. Hence we do not find the kind of insulation which is sometimes connected with such later thinkers as Gassendi. I am not sure, by the way, that we are entirely justified in counting Gassendi among the sceptics at all. Of course there are sceptical tendencies in his work, but he basically strikes one as an Epicurean-style dogmatist, who introduced the Epicurean distinction between *prodēla* and *adēla* and preached a kind of regionalized scepticism for the latter realm, while firmly believing in the reliability of the senses in the former. He also believed that the area of the *adēla* would dwindle with time, as he thought was already apparent for anyone familiar with the developments in contemporary, i.e. early modern, astronomy.

<sup>42</sup> On the various ways in which these *hoson epi* clauses are used in Sextus, see Brunschwig 1988a.

let alone about the *adēla*.<sup>43</sup> What is meant, presumably, is that the evidence of the senses cannot be used in the way the dogmatists use it, namely as a criterial starting point in a foundationalist epistemology. But that of course does not rule out that it can be used in a non-theoretical context in everyday life. All in all, then, it seems conceivable that a sceptic of Sextus' type would be prepared to 'affirm' the existence of place in the same weak sense in which he is ready to affirm the existence of commemorative signs. Yet, although the conclusion of *PH* 3.15 seems to leave room for such a view, we do not find it *expressis verbis* in the account itself, nor in its counterpart in *M* 10. In principle this might be just a matter of emphasis. After all, identifying what can somehow be salvaged of ordinary ways of thinking and speaking about place is just not what the whole enterprise of *PH* and *M* is primarily about. The main message of these texts is simply that strong assent is to be withheld from any attempts on the dogmatists' part to define their preferred concepts of place or to offer arguments to support them.

However, we seem to be dealing with more than just a matter of presentation. Sextus appears to have a rather restricted view of the kind of everyday concept of place a sceptic may be committed to, or 'affirm' even in a weak sense. It may be no coincidence that both the account of *PH* 3 and that of *M* 10 explicitly mention the difference between the narrow and the broad use of the term place.<sup>44</sup> *PH* 3.119 identifies these two uses as the 'proper' (*kuriōs*) versus the 'improper' (*katachrēstikōs*). We use place 'in the broad sense' (*en platei* or *kata platos*) when we identify the city, Alexandria, the school as 'our place'.<sup>45</sup> Place in the narrow sense is called 'exactly containing' (ὁ πρὸς ἀκρίβειαν κατέχων, *PH* 3.119), or 'exact' (κατ' ἀκρίβειαν, *M* 10.108) or 'in the circumscribed sense' (ὁ κατὰ

<sup>43</sup> The Greek text reads: οὔτε περὶ τῶν ἐναργῶν εἶναι δοκούντων ὅσον ἐπὶ τοῖς λεγομένοις ὑπὸ τῶν δογματικῶν ἔτι οἷόν τέ ἐστι διισχυρίζεσθαι. I take the words ὅσον ἐπὶ τοῖς λεγομένοις ὑπὸ τῶν δογματικῶν as qualifying οἷόν τέ ἐστι διισχυρίζεσθαι. Bury's Loeb translation, however, appears to take them as qualifying δοκούντων, translating: 'it is no longer possible to make positive assertions about those things which (if we may depend on the statements of the dogmatists) seem to be evident'; this, I think, makes less satisfactory sense: the issue with the dogmatists is not about some things *appearing* to be evident, but about the strong (theoretical) claims (διισχυρίζεσθαι) the dogmatists are prepared to make about these appearances.

<sup>44</sup> Note that although the distinction between broad and narrow place may well have its basis in Aristotle's distinction between an *idios topos* and a *koinos topos* (*Ph.* 4.2.209a31–5) Sextus himself does not suggest that it is exclusively applicable to the Aristotelian concept of place. In fact in *PH* 3 he introduces the distinction in what is a general introduction to the entire discussion of place, which includes the rival concept (as endorsed by the Stoics) as well. In the discussion of *M* 10 he introduces it in the context of the list of initial arguments which, though stemming from Aristotle, are not exclusively applicable to the Aristotelian conception of place.

<sup>45</sup> For the use of ἐν πλάτει see *PH* 3.119; *M* 10.108; for κατὰ πλάτος see *M* 10.15.

περιγραφὴν τόπος, *M* 10.15). Together these labels clearly indicate the difference that is at issue here. The place of (x) in the broad sense is vaguely demarcated and includes not only (x) but other entities as well. The place of (x) in the narrow sense is precisely demarcated (κατ' ἀκρίβειαν) and individuated (κατὰ περιγραφὴν) as containing just (x).<sup>46</sup>

It is only the use of the *broad* concept of place (as in 'Aristotle is in Athens') which is presented as unobjectionable and 'agreed' (*M* 10.15) between dogmatists and sceptics,<sup>47</sup> presumably in a non-theoretical context.<sup>48</sup> No *diaphōnia* or controversy will arise over the meaning or the appropriateness of the phrase 'in Athens' or even 'in the school' or 'in the room'. In ordinary life, accordingly, no sceptic needs to suspend judgement over the question whether he is in the school or in Athens. Yet as soon as we try to be more precise and use place in its narrowly circumscribed sense, the concept becomes problematic and questionable. Dogmatists who make use of it wrongly take it to be uncontroversial.<sup>49</sup>

Presumably the idea behind all this is that one cannot use the concept of narrow place in the way in which the Aristotelian examples suggest

<sup>46</sup> I take κατὰ περιγραφὴν in the literal sense as meaning 'narrowly circumscribed' and hence 'individuated' (i.e. not as meaning 'well-defined' in any theoretical sense). For it is thus that it can be used as an equivalent to ὁ πρὸς ἀκρίβειαν κατέχων. For a comparable, though slightly less literal use of κατὰ περιγραφὴν, see *M* 8.161, where the expression is applied to denote things conceived of 'with a subsistence of their own' (κατ' ἰδίαν ὑπόστασιν), i.e. individually, and 'absolutely' (ἀπολύτως), as opposed to things conceived as relatives (πρὸς τί πως ἔχοντα), which are always conceived in connection with something else.

<sup>47</sup> The use of the term 'agreed' (ὁμόλογον), here and in other contexts, seems to be significant: it signals that scepticism can and will question, and will eventually suspend judgement about, all claims or beliefs that are the subject of disagreement (apparently regardless whether they are everyday or highly theoretical). This point is central to the analysis of Włodarczyk 2000, esp. 41–56, which I find convincing. My point in the present context is merely the complementary one that the reason for real or potential disagreement about even everyday concepts is that these concepts introduce a modicum of theory.

<sup>48</sup> Elsewhere, in *M* 10.108, in the course of the discussion of motion, place conceived as exact is said to 'precede' (προηγείται) place conceived as broad, which would imply that the conception of broad place depends on the conception of narrow place. Does this mean that the use of broad place involves theory as well? That would make the rather liberal attitude which Sextus seems to take in *M* 10.15 unintelligible. Perhaps the crucial difference is that in *M* 10.108 the notion of 'broad' place is introduced in a *theoretical* context, to account for (the idea of a trajectory of) motion. In such a context the notion of broad place has indeed to be explicitly linked to (and hence in a sense determined by) the notion of narrow place. The broad place in that case is just larger, but no less determinate than narrow place (their relation is compared, *M* 10.109, to that of a stade to a cubit).

<sup>49</sup> Cf. *M* 10.14: ἐκείνοι ὡς ὁμόλογον ἡμῖν ἀντιφωνοῦσι τὸ ἐν τόπῳ γεγρονέαι Σωκράτην καὶ τὸ ἐν τούτῳ νῦν περιέχεσθαι Πλάτωνα. The claim that the use of 'narrow' place may not be taken as ὁμόλογον may seem to be contradicted by the introduction to the account of place in *M* 10, which refers to the notions of *topos* and *chōra* – as opposed to the notion of the void – as παρὰ πᾶσι σχεδὸν ὁμολογουμένοις (*M* 10.5). But there, I think, the emphasis is on people's opinions on the mere *existence* of place; as soon as we would ask them *what* it is, the agreement would disappear, and the attempt to specify the nature of place would immediately bring in at least a modicum of theory.

without *eo ipso* having some idea of what exactly this narrow place amounts to, and hence of the nature or definition of place. And this raises all kinds of problems and questions which in using the broad concept of place may be avoided. For example: how should we define Socrates' exact place, and can Plato occupy exactly the same place as Socrates did a moment ago, even if the two men are not of exactly the same size? In other words, even the Aristotelian examples from *enargeia*, in so far as they make use of phrases such as 'the same place' or introduce a concept such as natural motion, use place in what is no longer a completely non-theoretical context or an uncontroversial (because vague) sense.

Recent discussions of the scope of Pyrrhonian scepticism tend to present the issue in either of two ways: in terms of epistemic versus non-epistemic phenomena (the sceptic is allowed to make only non-epistemic claims about the phenomena but will abstain from making epistemic claims of any sort), or in terms of weak versus strong beliefs (the sceptic is allowed to hold weak beliefs but should withhold assent from strong beliefs).<sup>50</sup> Accordingly, also the situation of Sextus' sceptic concerning place may be characterized in two different ways. If we describe it in terms of epistemic versus non-epistemic phenomena, we might say that the non-epistemic phenomena of everyday life somehow involve a supposedly unproblematic (because uncontroversial) notion of emplacement, so that in that sense the sceptic is 'embarrassed' by *enargeia*. However, as soon as we start focusing in on what exactly emplacement as such involves, there appear to be no non-epistemic phenomena available. If, on the other hand, we prefer to describe the situation in terms of weak versus strong beliefs, we might say that in the case of phenomena connected with (narrow) place the beliefs of ordinary life are *not* sufficiently weak and etiolated to deserve the sceptic's commitment, because they inevitably entail a *modicum* of theory (and hence introduce some form of strong belief). In whichever of these two ways we prefer to put it, this seems to be the reason why Sextus does not confine his scepticism to any particular theoretician's notion of place but applies it to place *tout court*.<sup>51</sup>

It is interesting that this whole discussion about how much theory is presupposed by even a commonsense conception of place emerges in the

<sup>50</sup> Roughly speaking the relevance of distinguishing between epistemic and non-epistemic phenomena has been central to the position taken by Burnyeat (who claims that the sceptic can have no beliefs, regarded *qua* epistemic phenomena); the distinction between weak and strong beliefs has been applied by Frede, who does allow the sceptic a weak form of belief. The relevant publications have been printed together as Burnyeat & Frede 1997. For a convenient survey of the debate and the positions involved, see La Sala 2005.

<sup>51</sup> See Burnyeat [1984] 1997: 106.



context of a list of relevant phenomena which stems from Aristotle – and all this within an area of research where, as I indicated in my introduction, there is no clear boundary between commonsense conceptions and the conceptions of ‘science’ and philosophy; for the discussion draws our attention to an important difference between Aristotelian dialectic on the one hand and scepticism on the other in so far as the relation between ordinary concepts and theory is concerned. In Aristotle, the commonsense ideas concerning place from which the dialectical investigation starts out furnish, so to speak, the raw material from which the eventual theory of place is to blossom up. On the one hand, this means that Aristotle is not guilty of the kind of circularity for which he is criticized by Sextus. After all, the commonsense notions of place from which he starts out do not yet presuppose the fully articulated concept of place with which he will end up. On the other hand, they do contain aspects or elements of this fully worked-out conception and as such may appear to Sextus to be already too theoretically ‘loaded’ to be acceptable even as simple phenomena. For Aristotle, ordinary thinking and speaking about place furnish the starting points for a procedure of further philosophical articulation. For Sextus, apparently, commonsense conceptions of place, as soon as they are sufficiently specific, are also sufficiently theory-laden, and hence controversial, to fall under the scope of his scepticism.

*Motion: M 10.37–168**R. J. Hankinson***Introduction**

Sextus' discussion of motion in *M* 10 takes up thirty-eight pages of Greek text<sup>1</sup> at the heart of his general treatment of physical matters, following the accounts of gods, causation, body, limit and place, and preceding those of time, number, generation and destruction. It follows (apparently) a familiar pattern: arguments and considerations both *pro* and *contra* the existence of the alleged phenomenon are canvassed, declared to be equally balanced, and the conclusion drawn that motion 'no more exists than it does not' (*M* 10.45, 49, 168; cf. *PH* 3.65, 81); hence we should suspend judgement on the matter (*M* 10.69).

Ordinary commonsense experience (βίος) favours its existence, as do 'the majority of physicists, Pythagoras, Empedocles, Anaxagoras, Democritus, Epicurus, the Peripatetics and the Stoics' (*M* 10.45). Indeed, it seems a matter of evidence (ἐνάργεια, 66):<sup>2</sup> the sun clearly moves both diurnally and annually

This chapter is a descendant of a paper presented (in part) at Delphi. I have benefited greatly from the comments, formal and informal, of various participants both at the time and later. I have already noted the generous advice I received from Michael White; later Brad Inwood commented with his customary acuity on the penultimate draft, thus ensuring that it was indeed only penultimate, and making the final version a very much improved one; an anonymous reader at Cambridge University Press also made some valuable objections and suggestions, which I have endeavoured to address and accommodate. Perhaps the last words Michael Frede addressed to me were to apologize for his having missed my session – he had had to work at the last minute to help present the following one – and to promise that he would make time to discuss with me some issues in ancient grammar (those treated above in nn. 45–9, esp. n. 48), as well as sending me some written comments. The following day he was dead, with neither promise fulfilled. This chapter and my life are both the poorer as a consequence.

<sup>1</sup> Pp. 311–39 in the Teubner edition of Mutschmann 1914.

<sup>2</sup> ἐνάργεια is a crucial notion in later Greek epistemology in general, and in scepticism in particular; very generally, something is ἐνάργης if it is immediately evident, requiring no inference, evidence or justification. It is closely linked with the notion of something's being φαίνόμενον, apparent; things can be evident or apparent to the intellect as well as to the senses: see below, pp. 250–1, and n. 78.

(67), ships put to sea and enter harbour, and even the sceptic, after doing away with motion, goes out and attends to business (68). Diogenes the Cynic had the right attitude: when faced with arguments of this sort, he simply got up and took a walk (68; cf. *PH* 2.244; Galen, *CP* 9.115–16).

Yet matters cannot be allowed to rest there. The existence of motion has been denied by Parmenides and Melissus (46), and possibly Diodorus Cronus too (48);<sup>3</sup> while

That motion no more is than it is not has been said by the sceptics; for according to appearances motion is something, but according to philosophical argument it does not exist. (*M* 10.49; translation here and elsewhere after Bury 1936, with alterations)

Thus, entirely characteristically, Sextus positions himself by triangulation with respect to the two equally unacceptable forms of dogmatism, positive and negative. By far the bulk of the text is devoted to establishing the negative case (only *M* 10.67–9 argues for motion's existence, and then in very general terms; cf. *PH* 3.66); but this fact should not obscure the overall thrust of Sextus' general strategy of offering considerations *in utramque partem*. That Sextus conceives of this as the architectonic structure of his argument is most clearly expressed at *M* 10.69:

Those arguing from one side in support of motion are accustomed to bring up a plethora of similar considerations; and since we are happy with them as furnishing enough support for the establishment of this view, we will now argue for the opposite position. For if it can be shown that the non-existence of motion is equivalent in regard to plausibility and implausibility to its existence, then assent to neither, but suspension in regard to both, will clearly follow.

Still, things are not quite as simple as that; and I will return to the question of the structure of Sextus' arguments at the end of this chapter.

### Introductory remarks (*M* 10.37–49)

But first the arguments themselves. In making the transition to motion, Sextus apparently restricts the scope of the discussion:

Since we have got rid of this [sc. place] too, let us next examine whether anything can move *in respect of space* [my emphasis]. (*M* 10.36)

<sup>3</sup> Diodorus figures largely in what follows: *M* 10.85–120, see pp. 234–46 below; see also n. 13 below.

And while he begins his treatment by noting that Aristotle thought there were six kinds of change (κίνησις) in the broad sense, of which change of place is merely one (M 10.37), and goes on to observe that most philosophers<sup>4</sup> distinguish two fundamental species of it, μεταβλητική and μεταβατική (with the former subsuming the four Aristotelian categories of generation, destruction, increase<sup>5</sup> and decrease: 38–40),<sup>6</sup> locomotion, rather than qualitative (or even quantitative) change, is indeed his main concern. In fact, the vast bulk of his treatment of change (κίνησις) is exclusively concerned with it; and at M 10.44 he claims that if local motion can be shown to be impossible, so too will be all other species of change; ‘for this reason we will construct our puzzles (ἀπορίαι) particularly in respect of this, since, if this is done away with, the motion of change will also fall’.

But, however that may be,<sup>7</sup> it is a curious fact that there is no direct, general discussion of non-local change in M 10,<sup>8</sup> particularly when PH 3.102–6 offers just such a treatment. The subject is mentioned in passing in a number of other places (e.g. M 9.227–8, 328; 10.324, 328–9) but never directly tackled in its own right (M 9.271–6 discusses cases of qualitative change, but only in the course of analysing the concept of affection). Even more oddly, M 9.277 appears to promise just such an account: ‘Furthermore, if something is affected, it is affected as a result of either addition or subtraction, or alteration (ἀλλοίωσις) and change (μεταβολή)’; but while the problems posed by the first two are treated at length,<sup>9</sup> the third is

<sup>4</sup> ‘Including Aenesidemus and his crowd’: Bett 1997: 230 holds that this places Aenesidemus ‘at least implicitly among the holders of dogmatic theories of motion’; but it need show no more than that he accepted the standard bipartite conceptual division for dialectical purposes (for Aenesidemus, see further Schofield 2007 and Hankinson 2010). For Aristotle’s view, see *Cat.* 15a13–14, where he employs the slightly different terminology of ἀλλοίωσις and κατὰ τόπον μεταβολή.

<sup>5</sup> ‘Unless someone should say that increase belongs to local motion, as being a progression of bodies to length and breadth’ (40).

<sup>6</sup> Sextus’ account is not entirely coherent: he describes κίνησις μεταβλητική as being ‘that sort of motion in which the body, while remaining the same in substance, receives different qualities at different times’ (39), which obviously excludes generation, at least in its substantial, Aristotelian sense; see Warren, in this volume, pp. 365–402.

<sup>7</sup> It is in fact by no means obvious; in the previous passage (42–3) he has been discussing the views of Epicurus, for whom qualitative change is indeed reducible to spatial rearrangement; but of course there are alternative views available, not all of which entail any such reduction. At *Ph.* 8.7.260a20–261a26 Aristotle influentially argues that local is prior in various ways to the other forms of change; but his point is only that others presuppose the existence of locomotion, not that they are reducible to it.

<sup>8</sup> There is of course the specific discussion of generation and corruption: M 10.310–50; on which see Warren’s contribution to this volume.

<sup>9</sup> Subtraction: 280–320 (cf. *PH* 3.85–93); addition: 321–7 (cf. *PH* 3.94–6); the much shorter treatment of the latter is a function of the fact that the arguments are symmetrical with those that deal with subtraction.

almost completely elided: alteration (ἄλλοίωσις) is dealt with (if at all) only in the four lines of 9.328 (cf. *PH* 3.97),<sup>10</sup> a claim that transposition is a form of local motion. Finally, *M* 10.328–9 embeds an almost equally brief mention of μεταβολή within the general account of generation and destruction (*M* 10.310–50; cf. *PH* 3.109–14). These divergences render the relationship between *PH* and *M* problematic;<sup>11</sup> but I shall have no more to say about these issues here.<sup>12</sup>

### Conceptual considerations (*M* 10.50–60)

*M* 10.37–44 offer a general introduction to the topic. After detailing the types of κίνησις, Sextus writes:

Transitional (μεταβατική) motion is that in respect of which the moving object passes from place to place, either as a whole or partially: as a whole, as we see in the case of runners and walkers; partially, as in the case of a hand

<sup>10</sup> In *PH* transposition merits a separate (if exiguous) chapter, as it apparently does not in *M*. If the chapter divisions are indeed Sextan (on which see Annas & Barnes 1994: xiv), this may be significant. In general, the treatment of physical questions in *PH* 3 is broken down into many more sub-categories than it is in *M* 9–10.

<sup>11</sup> In particular, they cast doubt on Janáček's thesis (1948: 13; cf. 1972: e.g. 9–11) that Sextus composed *M* with an open copy of *PH* in front of him. Cf. Burnyeat 1984: 235, n. 18, who mentions – and apparently endorses – Janáček's contention: 'the purpose of *M* is to expand and clarify *PH*, filling in the *Outlines*'; but he also notes that, while in *PH* 3.124–30 Sextus offers a separate refutation of the Stoic view of the distinction between 'place' (τόπος) and 'room' (χώρα), 'in the larger work [he] confines himself to the mere mention at *M* 10.3–4', in the general introduction to the topic. This is hardly filling in. I incline (weakly) towards the view of Bett (1997: xxiv–xxviii; 274–6; and Chapter 1 above) that *M* precedes *PH* (a view echoed by Schofield 2007: 321, n. 37), although not much turns on the issue, and attempts to settle it invariably involve both controversial judgements and questionable normative criteria. At the symposium Myles Burnyeat energetically rejected the very idea of the possibility of such comparative datings.

<sup>12</sup> Another minor puzzle concerns the ordering of the topics, which differs in each treatment. In particular, why is time treated after motion? And although place is dealt with before motion in *M*, it follows it in *PH*; yet motion is a function of place, time and body, an analysis which Sextus apparently accepts, at least for dialectical purposes (*M* 10.121–2: pp. 221ff. below). One reason for dealing with time after motion might be that Epicurus treats time as a second-order accident of things such as motion; but this is only one dogmatic view among many (although Aristotle also makes time derivative of change: *Ph.* 4.11–14). Consider again the transitional sentence of *M* 10.36: 'since we have done away with this [sc. place], let us next examine whether anything can move in respect of place'. One might have expected Sextus to use the refutation of the notion of place directly to attack that of motion (he makes similar moves elsewhere, e.g. *PH* 3.38: the concept of body is ἀκατάληπτος since that of cause is; and note *M* 10.44, quoted above, p. 000: if local motion is abolished, all kinds of change will fall as well). But he conspicuously fails to do so; and in general the relations between sections are less linear in *M* than they are in *PH*: cf. *M* 9.209, where 'the non-existence of generation and destruction, affection, indeed change in general' are said to show that there is no such thing as cause – but the arguments in favour of their non-existence have not yet been given.

being opened and clenched, or of the parts of a sphere rotating about its axis. (*M* 10.41; cf. *PH* 3.64)

The characterization of transitional, or local, motion is quite general, and Sextus presumably expects it to be uncontroversially acceptable to the partisans of motion, at any rate if the present tense ‘passes’ (μετέρχεται) is taken in a generalizing, timeless sense.<sup>13</sup> At *M* 10.50, after summing up the results of 45–9 (‘such then is their opposition (στάσις) with regard to this subject (τόπος)’)<sup>14</sup> regarding motion, the main argument begins:

Next, in arguing against the existence of motion, we will introduce our first objections by concentrating on the conception (ἐννοία) of motion. (*M* 10.50)

In his general introduction to physical matters, Sextus remarks that

In every investigation, the concept (νόησις) of what is investigated precedes [everything else]. (*M* 9.12)

And in line with this he opens his discussion of the first physical topic (god) with an analysis of the origins of our conception of the divine (*M* 9.14–49) before proceeding to examine whether or not any such thing exists.<sup>15</sup>

In our passage, ‘conceptual objections’ occupy *M* 10.50–65. Sextus begins by considering what he takes to be the shortcomings of some philosophical definitions of κίνησις:

So some define motion by saying ‘motion is transition (μετάβασις) from place to place’. (*M* 10.51)

The provenance of this account is not specified; but it obviously picks up on the general characterization of 10.41. It is, as Sextus points out, inadequate as such (at any rate for an intuitive sense of ‘place’), since things can be in rotational motion without moving position as a whole (51; cf. *Ph.* 6.9.240a29–b7):

<sup>13</sup> Thus including Diodorus among those who accept its existence (*M* 10.48); alternatively, if one insists that motion must involve actual movement in the present, Diodorus will be one of the ‘partisans of stasis’, the στασιώται, or stationary revolutionaries of nature (‘nature’s dead-enders’), derided by Aristotle (*M* 10.46; cf. *Pl. Thet.* 181a); see further below, pp. 234–46.

<sup>14</sup> Another multiple pun, on both στάσις and τόπος; the topic certainly seems to bring out an uncharacteristic jokiness in Sextus’ style (compare 10.45: ‘there have been three general στάσεις [here = ‘positions’] with regard to motion’); but here, as elsewhere, such peculiarities may well derive from his sources, rather than indicating his own predilections. But the issue does seem to encourage such jocularly: compare Russell’s description of what he takes to be Zeno’s correct insight that there is no motion at instants as the ‘static’ account of motion (Russell 1903: §332).

<sup>15</sup> Cf. *PH* 3.3–12, and *M* 10.188–9 on time; and see Bett, in this volume, pp. 33–73.

Hence, in order to avoid this objection, some amend the proposed definition, saying that motion is transition from place to place, either of the whole body or of parts of the whole. (*M* 10.52; cf. 41)

In allowing for the motion of a body in place by the reciprocal displacement of its parts, this account requires, although Sextus does not dwell on this, a concomitant alteration in the operative definition of place as well, in order to allow us to talk of the places of the parts of the body as such; but this is (relatively) trivial.<sup>16</sup> This definition is close in sense to, albeit verbally distinct from, that attributed by Stobaeus to Chrysippus: ‘change in respect of place either in whole or part, or exchange of place in respect of either whole or part’: *SVF* 2.492 (indeed von Arnim prints 10.52 as part of his *SVF* 2.492).<sup>17</sup> Sextus objects that this disjunction is not exclusive: in some cases, bodies move partly in one way and partly in the other. His examples are compasses and doors, some parts of which simply move *in* place, while others move *from* place to place (10.53–4). Thus the door’s pivot rotates on its axis, staying (as a whole) in its place, while the rest of the door moves through successive spaces. Sextus’ objection has some (albeit limited) force against those (in particular the Stoics) who construe disjunction exclusively; but for all that, a simple amendment will dispose of it: in some cases, things move partially as a whole, and partially in virtue of the reciprocal motion of some of their parts’ parts.

But, Sextus continues, there is another ‘even more surprising’ (παράδοξοτέρα) type of κίνησις μεταβατική, ‘in which the moving thing is conceived of as moving, out of the place in which it is, neither as a whole nor in part’ (55). Suppose, he says, that a man is walking aft on a ship at exactly the same speed as the ship is making forward way, carrying a plank (δοκίς) in a rigid position. In the case so envisaged, Sextus claims, ‘there will be κίνησις μεταβατική, but the moving thing will move out of the place in which it is neither as a whole nor in part’ (56). The object’s place

<sup>16</sup> As Burnyeat 1984 notes, the influence of Aristotle’s account of place, as being the innermost surface of the surrounding body (*Ph.* 4.4), resonates throughout the rest of the ancient debate (in particular in so far as it involves the distinction between ‘broad’ and ‘narrow’ place: *Ph.* 4.2.209a31–b1), and indeed beyond (see below, pp. 223–4; and see Algra 1995: chs. 4–5; and Chapter 5 in this volume, pp. 184–216). *Ph.* 4.5, on the question of whether, and if so how, the various parts of the universe as a whole are in place, and move in place, is also relevant, since whether or not it is actually by Aristotle it is clearly Aristotelian. See also Morison 2002: ch. 5; Algra 1995: 193, 235–6, 255–8.

<sup>17</sup> Apollodorus’ definition reported by Arius is similar, although generalized to cover non-spatial change: ‘*kinesis* is change in respect of place or form (σχῆμα), either as a whole or in respect of parts’ (*SVF* 3.4.7). Denyer 1981: 42 plausibly suggests that the definition of *M* 10.52 is owed ultimately to Diodorus Cronus; but it is clearly of a general type that was widely accepted by a variety of different theorists, and as such is well suited to Sextus’ dialectical purposes.

here is conceived along broadly Aristotelian lines, as its surrounding envelope of air or whatever (Aristotle, *Ph.* 4.4.212a5–6; cf. 4.2.209a33–b2), but with a slight refinement: ‘the man who is moving in the ship remains in the same perpendicular (κάθετος) both of air *and water*’ (57: my italics). The specification of the water adds a complication: what water are we referring to? Presumably the man on shipboard does not literally have wet feet, so the water in question will not actually be in contact with him (and hence part of his delimiting place in the canonical Aristotelian fashion); and in any case, it is the plank he is carrying whose place is under discussion. The idea must be that there is a patch of water that passes (relatively) under the ship at the same speed and in the same direction as the man is walking and so maintains the same spatial relationship to the plank at all times and is consequently motionless relative to it.

A hint of this conception may be found at *Ph.* 4.2.209a33–b1, where Aristotle introduces the distinction between broader and narrower concepts of place:

You are now in the universe, because you are in the air, and that is in the universe; and you are in the air because you are on the earth; and similarly you are on the earth because you are in this place, which encompasses no more than you.

It is true that for someone standing on the earth, the portion of earth under their feet is as much part of the immediate container as the air surrounding the rest of them; but there is perhaps also the suggestion that it is the *fixity* of the earth that secures the particularity of this place. At all events, Aristotle seems to suggest something similar at *Physics* 4.4; he has argued (211b14–29) that, if you carry water in a jar, the jar may change place, although the water does not (its place *is* the jar); but even so it still seems that we sometimes want to identify the position of something by reference not to its immediate surroundings, but rather to its nearest fixed surroundings (212a7–14), although Aristotle’s language suggests that this temptation too should be resisted:<sup>18</sup>

Thus just as the container will be a moveable place, so space will be an immoveable container. For this reason, when something is moving and changing place within something else which is itself moving, such as a boat in a river, <it will be in the river> as something is in a container rather than as it is in its encompassing place. For this reason the river as a whole is the

<sup>18</sup> He uses φαίνεται + inf. to characterize the relevant epistemic states of affairs: ‘it appears that it is not only the limits of the container but also the intervening space as void that are place’; but earlier he has resisted this very account: 211b6–25.



place, because as a whole it is immoveable [or: unmoving]. Consequently the first immoveable [or: unmoving] limit of what encompasses will be the place. (*Ph.* 4.4.212a14–21)

Burnyeat (1984: 232–3, n. 15) takes this to be Aristotle's own refinement, one which he thus endorses,<sup>19</sup> and he argues that this does not threaten the doctrine of the immediacy of the surrounding place, presumably because the geographical river includes all the water it contains and so stretches up to and encompasses the boat, and hence we need not assimilate the boat's immobile place in this sense with the distant *banks* of the river. But it is presumably still the stationary banks that *determine* the motionless river-place; and since the water is constantly moving through this place, if we are to think of a three-dimensional river-place that permeates the water, it is hard to see how this account does not simply reduce to one of the earlier ones (the intervening void) which Aristotle has already rejected.<sup>20</sup> But, however that may be, such problems are not easily resolved, and so it looks as though Sextus is onto something.<sup>21</sup>

Yet the shipboard cases envisaged by Aristotle and Sextus are different in some important particulars. Most obviously, why should Aristotle, on any construal of his account of place and motion, concede that Sextus' plank is moving at all? Suppose the day to be still and the sea current-free, so that both air and water are motionless relative to the earth. The plank will be resting in place on *both* suggested accounts of place, since neither will the plank be moving with respect to its immediate container nor will the latter be moving relative to something fixed (the shore; the seabed) beyond it. Sextus' challenge, then, is to vindicate his contention that the plank *is* moving. Of course, for any suitably relativized notion of motion it is moving *relative to the ship*; but why should this be the appropriate notion of motion to apply here? Sextus should reply, I think, that, even if we are to adopt some absolute frame of reference for motion properly so-called, we will still require the relative concept for certain purposes; after all, the plank is surely travelling towards the rear of the ship (and the man is

<sup>19</sup> Contrary to Ross 1936: 57, 596–7, who thinks it may be a mistake and Hussey 1983: 117–18, who suspects interpolation.

<sup>20</sup> An anonymous reader suggested that I had misrepresented Burnyeat's position: 'he is still thinking of an Aristotelian place-as-a-surface, but now defined as the surface of the surrounding river taken as an immobile geographical entity (rather than as the surface of a mass of flowing water)' – but it remains mysterious (to me at least) what it is to be, on Aristotelian grounds, 'an immobile geographical entity'.

<sup>21</sup> For further discussion of these examples, and of Burnyeat's view, see Sorabji 1988: 187–94; and Algra 1995: 222–30. For an important recent defence of an interpretation similar to Burnyeat's, see Morison 2002: ch. 5, esp. 148–66.

actively doing something – it is not that the ship is simply sliding under him); and this is precisely what Aristotle's concepts of place and motion make it difficult for him to account for. And this is congruent with Sextus' philosophical goal in this passage, of indicating ways in which the various philosophical analyses of the concepts involved fail to cohere with our ordinary intuitions regarding them.

Sextus next turns to problems posed by quantized notions of body, space and time:

If we conceive of a partless and minimal (ἀμερές καὶ ἐλάχιστον) body turning in the same place . . . there will be a μεταβατική κίνησις, but the moving body will move out of the place it is in neither as a whole nor part by part: not as a whole, since it has been stipulated that it is rotating in the place where it is, but nor yet part by part, since it is partless. And the same argument applies if we construct a straight line out of partless bodies arranged one after the other and conceive of this as turning in its own place, as axles do. (58)

His first example presumably involves a single rotating minimum.<sup>22</sup> The first pertinent question, then, concerns whether this is even conceivable. The argument can be read as a *reductio* (and the same goes for the minimal axle case): to conceive of it requires conceiving of its axis; but that would surely be contained *within* the minimum and hence be a proper part of it, contrary to the hypothesis. And in any case, in default of there being separable parts of the minimum it seems that there is, as Sextus says, no way of supposing it to rotate. But this need perturb no atomist with a strong stomach, who might simply decide to swallow this apparently unpalatable conclusion: perhaps the concept of rotation just does not apply to partless magnitudes.

What Sextus needs is some argument in favour of the view that the minimal body *must* be supposed to rotate. Here is the best I can do (and it helps here to turn to the case of the minimal axle, and to consider it as being expressly contained within a larger quantized object). The minimum is small, but of non-zero size. It is one thing to hold that the axis of a rotating object,

<sup>22</sup> 'But the proponents of minima would not countenance the existence of such separated minima'; this is surely true (at any rate for the Epicureans, who must be the prime, if not the only, target here); but Sextus' argument requires the minima to be separable only conceptually, not physically: we are to *think* of the minimum at the centre of a sphere. But that they must indeed be separable conceptually for the Epicureans is evident, otherwise they could neither talk of nor postulate them. But then we are surely entitled, with Sextus, to explore the consequences of such conceptual separability. For the various notions of separability in play here, see Sorabji 1983: 352–7, 371–2 (and cf. 348–9, on the related distinction between conceptual and physical divisibility). On Epicurean minima in general, see Konstan 1982 and 1987; and p. 226 below.

conceived of as a geometrical line, does not move (cf. Aristotle, *MA* 3.690a12–20); but how could something of non-zero size, as a proper part of a rigid rotating object, not itself rotate? Now, the atomists' minimal parts are of course only *conceptually* separable (see n. 22 above): we could not actually *construct* Sextus' minimal axle. Thus any such minimal axle must be embedded in a structure of larger size which can rotate in accordance with the definition (since it is composed of parts). But how are the parts arranged? Consider the minima immediately adjacent to the minimal axle. They are able to move; and they are connected with it (they must be, since they are only conceptually divisible from it). But in that case, how can it not move with them? If they are in contact with it, they should drag it around with them.

Sorabji (1982: 372) has claimed that, since the minima have no edges, trivially they cannot satisfy Aristotle's definition of contact as having *adjacent* edges,<sup>23</sup> although they can still be successive.<sup>24</sup> But this is conceptually difficult; and it certainly seems to be the case that more than one minimum can be next to (even if not strictly adjacent to) the central minimum. But in that case, how are they to be distinguished? It seems that they can be so only by being next to different *parts* of the surface of the central minimum, otherwise they must either all coincide (cf. Aristotle, *Ph.* 6.1.231a21–b18, on the coincidence of contiguous points; and Chrysippus *ap.* Plutarch, *Comm. Not.* 1080E = *SVF* 2.487), or there will be gaps between them (but they are parts of *atoms*). But even if one allows that the surface of a body is not a part of it and hence has no real existence,<sup>25</sup> none the less surfaces are limits of bodies, so a part of a body's surface will be the limit of a *part* of that body (otherwise it is hard to see how the surface can have parts at all); and consequently such bodies cannot be partless. I do not know if the Epicurean view here can be fully purged of its attendant conceptual difficulties. Ingenious attempts have been made to make the doctrine of conceptually minimal parts, parts without shape or edge, but still sequentially ordered, coherent.<sup>26</sup> But the difficulties with it run deep, and at the very least they produce strikingly counterintuitive results; and that is surely enough for Sextus' purposes here.

<sup>23</sup> *Ph.* 6.1.232a21–b18.

<sup>24</sup> Compare the related claims of Sedley 1976: n. 2 and Konstan 1979: 405; and in general the texts collected in Long & Sedley 1987: section 10, with their associated commentary: 1987: 41–4.

<sup>25</sup> The orthodox Stoic view, which was rejected by Posidonius, who held that surfaces had a real, and not merely a conceptual, existence: Diogenes Laertius 7.135 = 50E LS = fr. 16 EK; on this issue, see White 2003.

<sup>26</sup> E.g. Konstan 1987: 6–10; see further below, pp. 255–60; esp. n. 86.

### How is motion discerned (M 10.61–5)?

Sextus now turns to the question of the nature of our evidence for the existence of motion, reiterating his earlier claim that the considerations for and against will turn out to be equally balanced (61). Initially, it may seem that ordinary sense-experience clearly tells in favour of the pro-existence lobby; but matters are not so straightforward, ‘in so far as some say that motion is grasped by sense, others that it is not at all grasped by sense, but by reason by way of the senses’ (62).<sup>27</sup> The former group point out that motion and rest affect our sensoria differently (something is presumably actually occurring in the former case, which is not in the latter: 63); but their opponents hold that every motion (*sc.* presumably every awareness of motion) occurs as a result of ‘co-recollection’ (συμμημόνευσις);<sup>28</sup> (64) in order to determine that it has moved, we need to recall that the body was previously elsewhere at the same time as we perceptually register its current position.

It is hard to assess this claim. Certainly there does appear to be such a thing as registering motion by perception; and, at least phenomenologically, this does not seem to involve recollection. Even so, it might be the case that more complex cognitive structures are operative even though we are not conscious of them. On the other hand, surely even very primitive animals can register movement? But perhaps the issue here is not whether an animal can register motion, but whether it can be consciously aware of it and perhaps even represent that awareness to itself in some way. This sort of dialectical wavering is, of course, grist to Sextus’ sceptical mill. None of the competing considerations need be compelling; indeed, of course, none of them should be. The mere fact that there are such disagreements shows that there is no consensus as to the nature of our apprehension of motion, if indeed we apprehend it at all. Even so, one might wonder how disagreement about the way in which motion is registered can cast doubt on the existence of motion itself: why should it matter how the registration works as long as it does? Here Sextus could contend that an inability to account for the mechanism of registration is

<sup>27</sup> Compare Descartes, *Meditation* 1.7.18 AT: ‘whatever I had up until now taken to be most certain I had apprehended either by the senses or through them’; cf. *M* 8.59–60.

<sup>28</sup> For this term, see *M* 1.129; 7.279; 9.353–6; 10.176; *PH* 3.108; Bury often translates ‘consciousness’, but the basic idea here involves there being a *dual* consciousness, of an occurrent perceptual state and of a memory of *distinct* perceptual state – and it is the comparison between the two of them (their difference) that generates the sense of movement, which in turn gives rise to the concept. See Barnes 1988: 253–4; and Ierodiakonou, in this volume, pp. 105–29.

sufficient in itself to cast doubt on its validity: if we do not know how we know, then we do not know that we do. Once again, much more could be said on both sides – and Sextus of course would be perfectly happy with that.

**General arguments against the possibility of motion**  
(*M* 10.70–84; cf. *PH* 3.67–9)

The argumentative structure of this passage is a lucid (if complex) *modus tollens*: if there is motion,<sup>29</sup> then something must move. But in that case, Sextus claims (70), there are only two possible consequences: either

(1) it is moved by something else

or

(2) it is moved by itself;

(1) further sub-divides into

(1a) it is moved by something else which moves with it,

and

(1b) it is moved by something else which does not move with it;

but none of these alternatives is in fact possible, and so neither is motion. The proof naturally divides into two lemmas ((1): 71–6; (2): 77–84), the first itself bifurcating ((1a): 71–2; (1b): 73–6). It is worth noting that (1) and (2) will not be jointly exhaustive if there are such things as uncaused motions;<sup>30</sup> and, while such a position is unorthodox, it was adopted, in a

<sup>29</sup> Actually, he writes: ‘if something moves primarily (πρώτως)’; the force of the qualification is not clear (it is absent from the parallel passage of *PH*); his illustrative gloss ‘such as an element’ perhaps suggests that we are to think of things intrinsically capable of movement, as opposed to those that move derivatively in some way (By being carried? By being associated with something that moves, such as souls or thoughts? By being aggregates of individually mobile parts?). At all events, nothing much seems to hang on this.

<sup>30</sup> The MSS of *PH* 3.67 add the further dilemma that ‘it will be moved either causelessly, or as a result of some cause’; but the text is very corrupt here (this clause is the apodosis of a conditional, whose protasis is ‘if [it moves] by something else’, which places the caused/uncaused opposition at the wrong place in the division: it should *precede* that into self-moved and other-moved), and Mutschmann–Mau and Heinze (followed by Annas & Barnes 1994: 162) simply emend this dilemma away. Certainly the received text cannot stand; but the original may have contained some mention of it, for the sake of completeness.

limited sense, by the Epicureans (in their doctrine of the minimal, spontaneous swerve). But equally if Sextus' arguments here carry any weight, they will be effective against anyone who does not suppose that *all* motions are uncaused, an extravagant supposition held by no ancient theorist.

Against (1a), Sextus contends (71–2) that it follows from this that if one thing moves, everything in the universe must. The argument is brief and puzzling. Sextus claims that if the mover always accompanies the thing that it moves, everything else will have to move along with it, which is (he says) absurd. The idea, presumably, is that if all moving things, including those which cause other things to move, require external causes for their motion, everything which is moving will need a (causally) prior, independent cause of *its* motion; which (as *PH* 3.67 explicitly states, although *M* does not) leads to regress, and hence an infinity of movers (at any rate, in an infinite, uniformly populated cosmos). This does not mean (at any rate not directly) that everything must move (there may be necessarily stationary objects). Only if

- (3) everything is moveable;

and

- (4) an infinite chain of moved objects must exhaust the totality of moveable objects,

does the conclusion follow; but neither (3) nor (4) seems remotely compelling. If, on the other hand, the population of moveable objects is finite, then motion (and motion-causing) will have to be reciprocal: everything that moves will both move and be moved by something else.<sup>31</sup>

However, the argument as just outlined appears to have nothing to do with the condition that the mover *accompany* what it moves, which seems to be central to the way in which Sextus presents the case in *M* (although not in *PH*). In any case, what does 'accompany' (συνακολουθεῖν) mean here (the term does not figure in the parallel passage of *PH* 3.67–9)? The two natural possibilities seem to be

- (5) a mover *m* accompanies its moved object *o* just in case at all times *o* is moved by *m*, *m* is in contact with *o*;

and

- (6) *m* accompanies *o* just in case at all times *o* is moved by *m*, *m* is also in motion.

<sup>31</sup> Which Sextus would no doubt impugn on other, familiar grounds: circularity is a vice for justification (cf. *PH* 1.169); presumably it is for causation as well (cf. *M* 9.239–41).

On any normal suppositions<sup>32</sup> about contact and motion, (5) entails (6) but not vice versa; hence (6) is weaker than (5). But while Sextus' language perhaps suggests he has (5) in mind, it seems that all he needs is (6); and this, along with the assumption that everything which moves requires a mover distinct from it, does indeed yield the conclusion that movement is either reciprocal or entails an infinite regress of moving objects.

As regards (1b), Sextus argues (74–5) that if (6) is not satisfied, then the only way in which *m* can affect what it moves will be by way of either addition or subtraction or change: but these processes have all been shown to be controversial (*M* 9.277–329), and hence there is no good reason to suppose that things can be moved by other things; in particular, Sextus points out, such concepts are inapplicable to atoms (75). The idea is that *m* must in some sense be active, that is, capable of causing change, and it can only have that capacity if it is undergoing change itself (this is argued in 76); but then local motion, addition and subtraction (the two possible types of quantitative change), and qualitative change exhaust all the available possibilities. Again the structure is lucid enough, even if the actual argument leaves something to be desired in terms of both clarity and persuasiveness; but since its success (or failure) evidently rests on that of the relevant passage of *M* 9, I shall say no more about it here.

The argument against option (2) occupies *M* 10.77–84, and is equally problematic. It begins with the following premiss:

- (7) if *o* is a self-mover, then either (a) it will [have a tendency to] move in all directions, or (b) it will [have a tendency to] move in one direction only.

Once again, the logical structure is lucid. Sextus argues against (7a) and (7b) in turn and uses them to deny the antecedent of the conditional by *modus tollens*. Moreover, the case against (7a) is simple enough, and has a provenance stretching back to Anaximander:<sup>33</sup> if a body has natural self-motive tendency in all directions it will not move, since every such *nisus* will be cancelled by an equal and opposing one (78).<sup>34</sup> It is (7b) where the difficulties arise. Sextus first considers the supposition that all self-movers

<sup>32</sup> I.e. on the assumption that both mover and moved are semi-rigid (or at least resistant) bodies. If we allow for incorporeal objects, or even interpenetrability, (5) may hold even though *m* is not in motion.

<sup>33</sup> *Cael.* 2.13.295b10–16 = 12A26 DK; cf. 12A11 DK.

<sup>34</sup> This is true of course only if the motive tendencies are all of the same strength; but, if they are not, then the condition will plausibly reduce to one in which there is a dominant, particular tendency, and so it will be special case of (7b): cf. *M* 10.82.

have the same unidirectional self-motive *nisis* (79) and rejects this as being obviously absurd (because different things are seen to move in different directions? But the Epicureans have at least a sketch for an answer to this).<sup>35</sup> But the alternative – that different things have distinct unidirectional tendencies – is rejected on the grounds that in that case there could be no combination of elements into complex bodies (79). The text seems suspect here, although neither Mutschmann nor Bury marks it as such. Here is the problematic passage:

(A) If some things are of a nature to move upwards, others downwards, no compound (σύγκριμα) will be generated from the moving bodies. (B) For if the elemental bodies (στοιχειώδη σώματα) are thought of as moving from the centre towards the extremities, the whole (τὸ πᾶν)<sup>36</sup> will be dissolved; for each will be separated from the other, since each will run with its own motion, *the ascending upwards, and the descending downwards*. (C) But if they are supposed to be being forced (συνωθούμενα) from the extremities towards the centre, they will be borne either (i) along the same radius (κάθετος; sc. as the ascending bodies?), or (ii) they will not . . . If (i) they will necessarily collide with one another, and thus they will either (a) be of equal force and hence come to rest, since neither side wins out . . . (although it is absurd to say that rest occurs in things that are by nature mobile),<sup>37</sup> or conversely (b) be unequal and hence be borne to a single place, either that above if the ascending bodies have won out, or that below if the descending ones are more powerful . . . But if (ii), they will not meet with one another, and if they do not meet they cannot generate any compound. But this is absurd. Therefore no mover is self-moved. (M 10.79–82: italics added)

The problems with this are manifold. First of all, it is tempting to excise the italicized phrase as a gloss, since it seems to sit badly with (B), which speaks of only *one* direction of motion, away from the centre: the sense then would be that the ascending bodies gradually move apart from one

<sup>35</sup> In their idea of a universal atomic tendency to move ‘downwards’ allied to that of distinct movements resulting from impacts caused by the ‘swerve’: Lucretius 2.184–295. Sextus apparently supposes that such a single self-motive tendency must exhaust all motive possibilities: but why is he entitled to that?

<sup>36</sup> As Sextus notes (M 10.231–4), the Stoics distinguish τὸ πᾶν from τὸ ὅλον, with the latter referring only to the physical cosmos, while the former encompasses the extramundane void as well; but, as he also notes, this is peculiarly Stoic, and neither Epicureans nor Peripatetics make any such distinction. At all events, he is evidently not using this term in any technical sense here, and my translation reflects that fact.

<sup>37</sup> Sc. (presumably) in virtue of their natural motive tendencies; of course this is by no means absurd, and early essays in mechanics (including the pseudo-Aristotelian tract of that name) are perfectly aware that it is not (and cf. Galen, *Mot. Musc.* 4.402–3 = *SVF* 2.450 = 47K LS). Perhaps Sextus is here taking a dig at some hallowed causal principles: nothing *F* by nature can bring about non-*F*-ness (cf. Plato, *Phd.* 100e–101b; Aristotle, *Ph.* 8.5.257a31–b13).



another, as their radii of ascent diverge (and they cannot combine if they are continually moving apart). On the other hand, (A) specifically introduces the (Aristotelian) possibility of different bodies having different natural motions, so this is what should be under discussion here, the claim being that even in this (ostensibly more promising) case, there will still be no fruitful meeting and compounding of bodies; moreover, (Cib) clearly requires that the descending bodies meet resistance not from the sides, as it were, from other descending bodies crowding into an ever shrinking space, but from below, from the ascending bodies, even though the opening words of (C) apparently introduce a new unidirectional consideration to balance that of (B) (although in intriguingly different terms: the participle *συνωθούμενα* suggests forced rather than natural motion). To complicate matters even further, (Ci) seems to involve different considerations, and ones apparently irrelevant to the question of whether the elemental bodies can combine. Here the issue seems to be one of dynamics, and Sextus is glancing towards Aristotle's doctrine that when two elemental bodies moving in different directions meet, their aggregate will move in the direction of the one which predominates (*Cael.* 1.2.268b26–269a29: below, pp. 240–5). Finally, while (A) appears to derive the conclusion that there will be no composition directly from the hypothesis of there being distinct natural motions, by the time we come to (Cii) this is apparently a consequence only of the supposition that the ascending and descending bodies do not follow the same radii. All in all this is a mess, and I am not sure what to do with it.<sup>38</sup> But at all events, the considerations rehearsed here, even if they can be purged of these confusions, carry little weight, even *ad homines*, and even supposing we can identify the *homines* in question.

*M* 10.83–5 adds a further argument against the possibility of self-motion: if something moves itself, it must be both distinct from itself (as mover and moved) and yet identical with itself; which is absurd. Considered *qua* mover, it must either be above, below, behind or in front of itself considered *qua* moved, which makes no sense. Here too, the

<sup>38</sup> My reservations about the text here were not shared by some of the participants at the symposium: in particular it was argued that there was no problem with the words I italicize, since even in case (B) we can think of things moving towards the extremities as moving upwards and downwards *relative to us* (upwards here; downwards from the antipodes); but I am unconvinced. At the very least to adopt such a non-technical sense of the terms in such a context, and one quite at variance with the established technical (Aristotelian) usage in which all such motions towards the extremities would be considered as uncontroversially upward movements, would be extraordinarily maladroit and misleading (notwithstanding Plato's rejection of such an account at *Ti.* 62c–63e: for he thinks that 'up' and 'down' cannot be applied in the context of the universe as a whole at all).

obvious target is Aristotle, who had indeed made just such a distinction in the case of self-movers, between their being considered as locations of motion (and hence as something moved) and as causes of it (*Ph.* 8.5.257a31–258b9; 6.259b1–16); and Aristotle too had insisted that motion-causing reduced to four species, pushing, pulling, spinning and carrying (*Ph.* 7.2.243a11–244b2; cf. *IA* 2.704b22–705a1). But for Aristotle, the mover, properly so-called, is not itself in motion (*MA* 1.698a7–9; *Ph.* 8.5.258b3–9). For animals, their souls are *archai* of motion: but souls are only moved incidentally (by being carried around in the bodies of which they are movers); and in any case they are themselves roused into motion by external features of their environment (the presence of something desirable or undesirable: *de An.* 3.10.433a17–20; *MA* 6.701b33–6). Thus, while for Aristotle animals are in one sense self-movers, in another they are not; and they are evidently not in any sense strong enough to fall foul of Sextus' claims of incoherence here. On the other hand, the elements (Sextus' ostensible object of concern) are not for Aristotle self-movers at all (*Ph.* 8.4–5): their natures contribute (passively) to their capacity for motion but cannot serve on their own to rouse that capacity into actuality.<sup>39</sup> Sextus' arguments here do not address that view at all, although he would presumably have supposed them to have been dealt with in 71–6.

We may now briefly use this Aristotelian material to summarize the *lacunae* in Sextus' argument. As we saw, he holds that everything must either move itself or be moved by something else; and that if moved by something else, that something must also be in motion (76). By denying the last move, Aristotle can avoid being trapped into any kind of regress and also evade the clutches of the argument against the possibility of self-motion (77–84), however precisely that is to be construed. Moreover, in the case of animals, external objects cause their motion not by way of spatial movement, destruction or growth, or even by alteration (*ἀλλοίωσις*), except in a special sense (*de An.* 2.5.417b2–16); thus here too he can avoid being impaled on the horn of Sextus' dilemma of 73–4, that the only ways of disposing something are by addition, subtraction or change, whether or not Sextus has managed to cast doubt upon the reality of these elsewhere.

<sup>39</sup> Much more could be said about this difficult and controversial topic; my view closely mirrors that of Furley 1978, repr. in Gill and Lennox 1994; other papers in the latter collection are also relevant, in particular those of Gill 1994; Sauvé Meyer 1994; Wedin 1994; and Shields 1994.

### The arguments of Diodorus Cronus: (I) Exposition (*M* 10.85–90)

The argument of Diodorus Cronus that Sextus retails at *M* 10.85–90 is relatively well known and has been the subject of considerable recent discussion. I shall treat it in fairly summary fashion, concentrating more on Sextus' responses to it than on the argument itself. Diodorus<sup>40</sup> argued for<sup>41</sup> the existence of indivisible units of space and time.<sup>42</sup> He was not the first to do so: Aristotle's discussion of continua in *Physics* 6 (esp. 1–2) evidently responds to people who make such atomistic suppositions.<sup>43</sup> But at all events, Diodorus apparently argued that space cannot be infinitely divisible (not even potentially, as Aristotle had held), and hence that an object cannot be in the *process* of traversing a minimal spatial unit, since if there were such a process it would have earlier and later parts, which in turn would have to be characterized in terms of a linear ordering of successive partial traverses of the minimum. But that is incoherent: you cannot be part-way across an indivisible magnitude. Here is Sextus' presentation of his celebrated inference:

Another forceful consideration in favour of the non-existence of motion is supplied by Diodorus Cronus, through which he establishes that nothing actually *is moving*, but rather *has moved*. That nothing is moving is a consequence of his hypothesis of indivisibles (ἀμερῆ).<sup>44</sup> For the indivisible body must be contained within an indivisible place, consequently it can move neither in it (since it completely fills it, while what is to move requires a space larger [sc. than itself]), nor in a place where it is not (since it is not

<sup>40</sup> On Diodorus, see in particular Sedley 1977, who argues (80) for dating his death to around 284 BC, rather than 307, as used to be generally believed. If this is accepted, Diodorus must have been reacting against, rather than influencing, Aristotle's arguments in favour of continuous magnitudes and against atomism, physical, spatial and temporal, which seems to me in any case the more plausible supposition (however see White 1985: 69–72).

<sup>41</sup> Or at least hypothesized: but I agree with Denyer 1981, in supposing that he did indeed produce arguments for his positions.

<sup>42</sup> That Diodorus posited time-atoms is controversial, but Sorabji 1982: 19–21 is probably right to suppose that he did.

<sup>43</sup> The third head of the Academy, Xenocrates, is usually thought to be at least one of his targets: see Isnardi Parente 1982: fr. 127, and 357–67 (and see also the spurious – but still broadly Aristotelian – *On Indivisible Lines*). Of course, Aristotle is also, and primarily, concerned with refuting Zeno's paradoxes of motion, although there is no real evidence (*contra* Tannery 1887: ch. 10; cf. Owen 1958) that Zeno himself really countenanced the possibility of atomic units of space. On the relation of the Diodoran position (and Aristotle's arguments) to Epicurus, see Konstan 1987 (and 1979).

<sup>44</sup> Sextus seems to get the logical dependence the wrong way round here: Diodorus' argument is simply a generalization of Zeno's arrow, which works if it works at all just as well for continuous space and body, and as such does not presuppose the hypothesis of indivisibles; rather it is intended to *support* it; on the assumption of quantized spaces and magnitudes, and instantaneous jumps, we can hold that things can have moved, as perception suggests. See further below, pp. 255–60.

yet in that space such that it can move in it). Hence it is not moving. Yet, from a rational perspective, it must *have moved*, since what had earlier been seen to be in this place is now later seen to be in a different one, which would not have happened if it had not moved. (M 10.85–6)

Sextus (dialectically of course) roundly denounces this last claim as being absurd, for reasons which we will address shortly. Next he presents Diodorus' celebrated argument (he describes it (87) as περιφορητικός: another jocularitry?) against motion in the present (already glanced at in the previous passage):

If something moves, it moves either (a) in the place where it is, or (b) in that where it is not; but not in the place where it is (since it is at rest in that), nor in that where it is not (since it is not in it); therefore it does not move in any way. (M 10.87)<sup>45</sup>

Sextus remarks that 'the method of establishing the premisses is evident' (88), since the disjunctive alternatives really are exhaustive (there is no third place, which is neither where it is nor where it is not); and things can only act or be affected in the places where they are. But the current place of the object (construed narrowly) exactly fits it: there is nowhere in *that* for it to move. And so it cannot actually be moving (88–90).

Here, as elsewhere, Diodorus employs Aristotle's terminology to his own ends. Aristotle claims that at any time an object is in motion, it is also true to say of it that it has moved, since space and time are continuous and there is no first instant of motion (*Ph.* 6.6.236b32–237a7; see Sorabji 1976: 71–5). On the other hand, Aristotle says, nothing can both be in the process of getting somewhere and have already arrived there (*Ph.* 6.1.231a18–232a18), which fact ensures the continuousness of space and time. Moreover, he argues (232a6–18) that the hypothesis of indivisibles requires that something can have got somewhere without ever having been in the process of getting there, which he takes to be absurd, and hence to refute the hypothesis by *reductio*. Diodorus, in the manner of paradigm-shifters throughout history, makes an acceptance of that supposed absurdity the basis for his own positive account of motion and space.

<sup>45</sup> The argument is a favourite of Sextus': he also quotes it at *PH* 2.242; 3.71; *M* 1.311. He also tells the story (*PH* 2.245) of Diodorus asking Herophilus to re-set a dislocated shoulder, whereupon the latter replied that since the shoulder was either dislocated where it was or where it was not, it could not have been dislocated (fr. 15 vS). As Denyer 1981: 45, rightly notes, 'Herophilus' parody was wide of the mark: Diodorus complained "My shoulder has been dislocated", not "My shoulder is being dislocated", and it is only the propositions like the latter that he claims to refute.' At the very least, Herophilus needs to argue that the logic of luxation requires that it cannot *have been* dislocated unless there was some time at which it *was being* dislocated.

**The arguments of Diodorus Cronus: (II) Objections,  
replies and further objections (M 10.91–III)**

Sextus next presents five objections to the argument. The first ((1): 91–2) derives from quasi-grammatical and tense-logical considerations: past-tensed statements can be true only if their present-tensed counterparts at some time *were* true. But this is what, absurdly, Diodorus denies. Moreover, if something is a limit or boundary for something else, that something else must also exist: but the past is a limit for the present (i.e. presumably past and present about on one another; this of course is not a purely linguistic point). It is hard to construe this argument as having much force. The second objection ((2): 93) is directed against the denial of disjunct (a) (above, p. 235), and involves the rehearsal of earlier considerations (cf. 51): certain things (spheres, cylinders, cones, etc.) can rotate without leaving their (narrow) places. But of course even if this does show that some sorts of movement can take place in place (*contra* 51; cf. 103), it certainly will not rehabilitate ordinary translational motion. In the third place ((3): 94) ‘some say that the argument is constructed contrary to the conception (ἐννοια) of motion’: things should be thought of not as moving *in* either place, but *from* and *to* them. Others yet ((4): 95) seek to defuse the argument by distinguishing between places broadly and narrowly construed (see above, pp. 223–4); things can move in the former even if they cannot in the latter. Finally ((5): 96) there are those ‘who think that the argument is non-concludent (ἀπέραντος),<sup>46</sup> since it starts from a disjunctive premiss but then makes it false in what follows, since it shows that each of the disjuncts is false’.

To objection (1), Diodorus himself offered a reply: there are instances in which the past-tense statement *is* true, but the associated present-tense statement never has been (97–8): take the case of two men who married in different years: ‘they have married’ is true of them, but ‘they are marrying’ never has been. Having married six husbands does not make Elizabeth Taylor a bigamist – there never was a time when she was marrying all six of them (nor, indeed, when she was actually married to any more than one of them). Sextus counters the counter (99–100): ‘these men married’ is ambiguous between the ‘plural’ reading (‘these men married together’), which is false along with its associated false present-tense statement, and a conjunction of two distinct propositions, ‘this man married’ and ‘that man married’, each of which is true; but in this case the individual associated

<sup>46</sup> For conclusivity and non-conclusivity, see Barnes 1980: 165–75; and Brunschwig 1980: 129–32.

present-tense statements *were* true, albeit at different times. Sextus' counter thus takes the form of showing that for any true past-tense statement there will be a way of constructing associated present-tense statements which are also true: and so the natural link between the two is not ruptured, as Diodorus supposes it is.

Diodorus has not yet shot his bolt, however: 'he adduces another argument against the same hypothesis, one which relies on a clearer example' (100). It is by no means clear that it *is* clearer;<sup>47</sup> but here it is:

Let a ball, he says, be thrown against an overhanging roof.<sup>48</sup> Then in the middle of the throw<sup>49</sup> the present-tensed proposition (παράτακτικὸν ἀξίωμα) 'the ball is touching the roof' is false, since it is still approaching it.<sup>50</sup> But when it has touched the roof, then the past-tensed (συντελεστικὸν) 'the ball has touched the roof' becomes true. Therefore it is possible for the past to be true even though the present is false,<sup>51</sup> and hence something may never be moving in the present and yet still have moved in the past. (M 10.101)

Sextus objects that the present-tensed claim 'it is touching' is not true 'when the ball is in midair', which is evidently how he understands 'in the

<sup>47</sup> Denyer 1981: 43 rightly characterizes it as 'rather more puzzling' than those which preceded it.

<sup>48</sup> I.e. (presumably) a ceiling. It is not obvious if the choice of a roof (or ceiling) is supposed to make any difference to the example; on the one hand it seems curiously specific; on the other, it is hard to see what might be specifically important about this type of rebound rather than any other. One might suggest that in this case, as opposed to that of a ball rebounding from a vertical wall, the motion upwards is distinguished from that downwards in that the former is forced while the latter is not – but I cannot myself see why that should matter to the argument.

<sup>49</sup> I.e. (presumably) when halfway through its complete trajectory; but this is not how Sextus understands it: see below.

<sup>50</sup> This last clause appears in the text, but it must be Sextus' 'clarification' of Diodorus' argument, rather than an original part of it; but that it is indeed Sextus' own addition (rather than a scholiast's intrusion) seems certain, in view of his subsequent construal of the argument: see further below.

<sup>51</sup> Not of course just false *now* (when the past-tensed counterpart is true), since that is a standard feature of the Greek logic of tenses, but rather false in the sense of its *never* having been true. Michael White suggested at the conference (and afterwards kindly repeated his suggestion in epistolary form) that what is at issue here is not so much tense as aspect: 'Diodorus is claiming that there can be an achievement/accomplishment ... without its ever having been the case that there occurred a corresponding "developmental process" of the ball's being in the process of touching the roof. There is no such thing as a (developmental) *process* of "touching" (which is what Diodorus is taking the "present" (παράτακτικός) form to connote). Similarly (and perhaps more controversially), he wants to argue that something can have moved in the συντελεστικός sense of being in a state of having a different position than it previously occupied (κεκινήσθαι) without ever being in a developmental process of moving (κινεῖσθαι)' (personal communication). This may be right, and certainly Greek issues of tense and aspect need treating with great care. But I do not think settling this question ultimately matters much to the argument here (I should also note that White construes the example as involving throwing a ball onto the upper surface of a sloping roof, from which it then rolls down and off over the edge – his interpretation of the point at issue as involving the first contact allows for this possibility, which would in turn allow, indeed require, corresponding adjustments in the understanding of the subsequent course of the argument).

middle of the throw' (ἐν τῷ μετὰ ἄερί: 102), but rather 'when it begins to touch the roof' (102); and you cannot argue from the fact that there is *some* time earlier than the time at which the past-tensed statement is true when the present is not, that the present *never* is. This is no doubt right, but it rests on a misconstrual of the crucial phrase. Diodorus presumably argued somewhat as follows: when the ball makes contact with the roof, it immediately rebounds – there is no period of time at which it remains in contact with it, 'suspended' as it were. The rebound is thus instantaneous; but then there is no time at which it *is* touching the roof<sup>52</sup> (it matters that the ball is conceived of as being rigid – it cannot be allowed to deform elastically, for then there would be an extended period of time during which some of it would remain in contact with the roof).

This argument does not, of course, rely upon Diodorus' own views regarding the structure of space, time and motion; it is aimed dialectically at those who reject them. Indeed, as Denyer (1981: 44) points out, 'if you wish to maintain that the present "the ball is touching the ceiling" is at some time true ... you are best advised to adopt Diodorus' account of motion', since on this view objects are at rest during each temporal atom, moving instantaneously 'between' them; and hence after the ball traverses the last spatial atom to the ceiling, it will indeed rest during the next temporal atom before instantaneously re-traversing the last space as the first of its rebound.<sup>53</sup> Denyer then suggests, ingeniously, that Diodorus offered his argument as a dilemma: if you do not accept his view of motion on the grounds that according to it some past-tensed statement will be true even though the associated present-tensed statement never is, you will

<sup>52</sup> Denyer 1981: 44 derives this from the supposed impossibility of something in motion's being in contact with something at rest; but that seems to be counterintuitive only if we suppose that the motion really is continuous, i.e. there is no time at which the ball is not moving. Of course, on the continuity view, there is no *interval* of time in which it rests; but why not think of the instant of contact as being the limit-point of both the upward and the downward motion? I am inclined to think that Diodorus' argument relies rather on the simple plausibility of thinking that rest must take some time, and that this is not allowed for by the continuity-theorist. Moreover if we allow that there is instantaneous momentary contact, then there will either be no last moment of ascent or no first moment of descent (or, perhaps less arbitrarily, there will be neither); and that is at least initially counterintuitive (although not absurd); see Sorabji 1976, for a discussion of these issues in connection with Aristotle's theory; and above, p. 235.

<sup>53</sup> The alternative would be to suppose that there were no temporal atom (or chronon: see below, pp. 260–2) of rest in contact with the ceiling; but then the ball would have to move instantaneously in opposite directions; a supposition which at first sight seems to be indistinguishable from the hypothesis that it never travelled the last space in either direction, and hence never touched the ceiling at all (cf. *Ph.* 8.8.264a14–b1); yet might be distinguished by empirical tests (paint the ball blue – if it leaves a blue mark on the ceiling then it has touched it, even if there is no time at which it has done so); but I shall not pursue these exotic suggestions any further.

find yourself committed, by the logic of continuity theory, to a different instance of the same alleged absurdity's being true; so it cannot, in general, be absurd; and hence such considerations can provide no general grounds for rejecting his theory.

Objection (2) is briefly despatched at 103–4, relying on earlier arguments (51–7; pp. 221–5 above; cf. *PH* 3.72): anything revolving may remain in the same place as a whole, but its parts must still be moving; and in any case, no one could claim that *all* motion is of this sort.

As regards (3), Sextus adduces 'those who have said that the argument thus propounded runs counter to the conception of the moving body, since the moving body is conceived of as occupying *two* places, both that from which it moves, and that into which it is transitioning' (105). The *concept* as such is irrelevant, Sextus declares: what matters is whether it is instantiated. This is no doubt correct up to a point but misses the point. The 'two-place' concept is (if coherent) relevant against the claim that motion is *conceptually* impossible, since that claim itself derives from a different conceptual analysis of the notion; and if it turns out that it is not the only such analysis (or indeed is mistaken), and the alternative analysis does not fall foul of this or similar conceptual objections, then the partisans of motion will at least have established that some idea of motion is coherent, and hence possibly instantiated. It is true that it is still a further question whether it actually is, but then the burden of proof will rest squarely on the motion-denier, as Sextus himself recognizes (*M* 10.66–9, above, p. 218; cf. *PH* 3.66).

Sextus also, in good sceptical fashion, takes aim at the argument itself ('if we can overturn the argument, they will not have anything left to say to us', 106):

When they say that the moving body occupies two places . . . we will ask them when the moving body transitions from the place in which it is into the other? Is it when it is the first or when it is in the second? But when it is in the first, it is not transitioning into the second, since it's still in the first. But when it is no longer in the first but the second, then once again it is not transitioning, but rather has transitioned. (*M* 10.106–7)<sup>54</sup>

<sup>54</sup> Cf. n. 53, *PH* 3.73–4: this passage closes with two puzzling sentences not paralleled in *M*: 'moreover, this begs the question [for it is not possible that it be active in a place where it is not]. For surely no one will allow that something is moving to any place if he refuses to grant that it moves at all.' Annas and Barnes (following Kayser and Heintz) seclude the bracketed clause as an intruded (and unintelligent, not to say incompetent) marginal gloss (for the consideration in play, cf. *PH* 2.242). The claim, then, is that the proponent of motion begs the question in the sense that he assumes something which his opponent is not prepared to grant. But this can hardly be a conclusive consideration, even in a dialectical context (obviously there can be no dialectical requirement to accept *all* your opponent's premisses). In any case, the partisan of motion does not assume what he is trying to prove; rather he seeks to make logical room for a coherent concept of motion by proposing an alternative analysis of it.



So, Sextus insists, the proposed conceptual revision is of no help, since we may still ask the relevant instantaneous questions. But perhaps the proposed revision was devised precisely to block such moves: there is no proper sense, it might have been urged, to the question of whether something is moving (or indeed at rest) at an instant. And such a view has a respectable pedigree: for it is Aristotle's (*Ph.* 6.3.234a32–b9; 8.239a23–b4).<sup>55</sup> States of motion and rest can only be coherently conceptualized for *periods* of time (although in Aristotle's continuous physics there is no shortest period), and hence there is no genuine question to answer regarding instantaneous motion (or, alternatively, instantaneous motion is parasitic upon motion through temporal periods: an object *o* is in motion at an instant *i* if and only if *i* is contained within a stretch of time *T* and *o* is moving through *T*).

The same response, *mutatis mutandis*, works equally well against counters to objection (4), which turns on the distinction between broad and narrow place (discussed above, pp. 223–4, *ad M* 10.55–7).<sup>56</sup> The narrow place of a body is that in which it (and nothing else) is: it is either the three-dimensional extension which corresponds to the body, or (in Aristotelian terms) the innermost surface of its surrounding envelope (nothing turns on whether either of these accounts – or indeed some other one – is chosen).<sup>57</sup> By contrast, its place in the broad sense contains more than just the body itself. My study is now my place, but my study (fortunately) contains more than just me, and (even more fortunately) does not tightly circumscribe my surfaces. Objectors say that it is possible for a body to move in its broad place (indeed, obviously, in any number of them, since there can be broader and narrower broad places: my study, my house, Austin, Texas . . .). Sextus responds, first (108), that the concept of broad place is parasitic upon that of narrow place; this reply carries no weight in and of itself, since it need not matter to the objector if broad place is *defined* in terms of narrow. Then, more pertinently, he contends that since (any) broad place of any body must necessarily contain its narrow place, if it moves in the former it must move in the

<sup>55</sup> See Sorabji 1976; Owen 1958.

<sup>56</sup> Again, the treatment in Burnyeat 1984, is seminal; see also, in regard to Aristotle, Morison 2002: ch. 2.

<sup>57</sup> For ancient disputes concerning competing analyses of place, see Sorabji 1988: 76–7, 186–201; see also *PH* 3.124–34; *M* 10.3–4, 30; for Aristotle's rejection of the idea that something's place is its extension, see *Ph.* 4.1.209a4–6; 4.2.11b20–5; 212a3–5; see Morison 2002: 121–32. This argument is also rehearsed at *PH* 3.75.

latter too: ‘for just as no one can cover a stade without first covering a cubit, so it is impossible to move in the broad place without moving in the exact one’ (109). And in any case (110), Diodorus was relying on the exact, narrow concept in constructing the argument. But, one might respond, while it is certainly true that any body covering a determinate finite distance must also move through and in all the smaller intervals that make it up, this does not entail its moving in spatial points (although obviously it moves through them, in the sense of passing over them); and equally there is no requirement that the body move (in the sense of actually altering its position) within any of its narrowly construed places.

Finally, Sextus is rightly dismissive of objection (5) (110–11), as betraying serious logical incompetence: the form of the argument is a *modus tollens*, in which the consequent of the conditional is disjunctive; the disjunction is not first asserted and then denied; rather it is simply denied (by denying that either of the disjuncts is true), from which the negation of the antecedent (‘there is motion’) is then perfectly validly inferred.<sup>58</sup>

### **The arguments of Diodorus Cronus: (III) Further arguments and replies (M 10.112–18)**

Sextus next considers two Diodoran arguments he describes as ‘less weighty and more sophistical’ (112). The first is simply expressed, without even an attempt at refutation: ‘he says that (1) the moving body is in place, and (2) what is in place does not move; therefore (3) the moving body does not move’ (112). Presumably, Sextus thought the fallacy to be one of equivocation: the sense of ‘in place’ required by (1) is ‘occupies a particular narrow place at an instant’; but the sense required by (2) is something like ‘remains in place’ (someone ‘running in place’ covers no ground).

The second argument is more involved, and correspondingly more difficult to construe. First it asserts that ‘there are two types of motion, (a) that in respect of preponderance (*κατ’ ἐπικράτειαν*), and (b) that in respect

<sup>58</sup> The objection is indeed hyper-incompetent, since of course there is nothing logically objectionable about positing some assumption with a view to deducing a contradiction from it, and hence eliminating it by *reductio*.

of unalloyedness<sup>59</sup> (κατ' εἰλικρίνειαν)' (113). First of all, it is unclear what the distinction between (a) and (b) is supposed to amount to. At Cael. 1.2.268b26–269a29 (see above, p. 232), Aristotle discusses the case of a body compounded of elements with opposing natural motions, saying that in that case it will move κατὰ τὸ ἐπικρατοῦν: in the direction of the element which is preponderant. Thus we might suppose that (a) and (b) differ in that the latter, but not the former, case, the moving body *m* is composed of parts with a uniform tendency to motion. But this is not quite what we find; rather, as Sextus explicates the difference, in the case of (b) all of *m*'s parts are moving, while in that of (a) only the majority of them are, the others being at rest. This in turn might mean that, in the (a) cases, at any given time some parts of it are literally at rest, while the others move, as happens for example with the planted feet of moving footed animals (cf. *MA* 4.700a6–11; 9.702b25–7). Alternatively, the parts which remain at rest (or resist the motion) might somehow do so naturally, in the Aristotelian sense of that term. We will return to this in a moment.

At any event, Sextus remarks: 'it seems (δοκεῖ)' <sup>60</sup> that, of these two types of motion, (a) is prior to (προηγέσθαι) (b). Is this priority logical (conceptual), or temporal or causal? Again matters are not entirely clear. Consider the subsequent section:

In order for something to move κατ' εἰλικρίνειαν, that is, the whole of it moving as a whole, it must first be thought of (νοεῖσθαι) as moving κατ' ἐπικράτειαν, in the same way as someone who is to become genuinely grey must first become preponderantly grey, and that for there to be a heap κατ' εἰλικρίνειαν, there must have already been one κατ' ἐπικράτειαν.<sup>61</sup> In the same way, motion κατ' ἐπικράτειαν must precede that κατ' εἰλικρίνειαν, since that κατ' εἰλικρίνειαν is an intensification (ἐπίτασις) of that κατ' ἐπικράτειαν. (*M* 10.114)

The νοεῖσθαι perhaps suggests that it is conceptual priority which is at issue here. But it would be strange to claim that partial motion was *conceptually* prior to the motion of the whole. After all, there was by Sextus' time a long Greek tradition (in which Aristotle was once again

<sup>59</sup> I settled on this rather barbarous rendering of εἰλικρίνεια here after some hesitation; I had originally written 'absoluteness' but was convinced by a gently chiding note from Brad Inwood that this would not really do. As Brad remarked, the relevant underlying semantic sense is that of purity (as in a metallic assay), which this new version seeks to capture. In what follows, I simply leave the phrase in its original (transliterated) Greek, trusting that its general import will emerge from the discussion.

<sup>60</sup> A good sceptical qualifier, which certainly does not imply that the appearance is probably deceptive.

<sup>61</sup> The examples here, and the later invocation of '10,000' as a proxy for some very large number (see *M* 10.117, quoted below) both suggest soritical connections; and yet the argument as it is developed is not (I think) genuinely soritical.

an influential player) which affirmed the conceptual priority of the whole to the part (although for Aristotle, the case is typically complex and nuanced: *Metaphysics* 7.10; cf. *Pol.* 1.2.1253b19–22); and the notion of being in motion in respect of some part seems to presuppose that of motion *tout court*, rather than the other way round. Moreover, the introduction of the idea of intensification suggests that it is physical, rather than conceptual, considerations which are paramount here: motion occurs (invariably? Typically? Some of the time?) as a result of the parts of an object acquiring movement successively; and hence the priority of partial over total motion is temporal.<sup>62</sup> It remains, then, to determine what it is for something to move in respect of its parts.

Once again, the overall logical structure of the argument is lucid:

- (1) if a thing moves κατ' εἰλικρίνειαν, then it must also move κατ' ἐπικράτειαν;
- (2) but nothing can move κατ' ἐπικράτειαν;

Hence

- (3) nothing can move κατ' εἰλικρίνειαν;

And so

- (4) nothing can move.

The conclusion (stated at 117, quoted below) is quite general: nothing *at all* can move, since anything which does must do so (in a sense) κατ' εἰλικρίνειαν. If motion κατ' ἐπικράτειαν simply means 'movement in respect of the majority (of the parts) of the body', then it is indeed the case that if all the body moves, then so must the majority of its parts, but not necessarily vice versa (if they are not rigidly attached to one another), which is one way of understanding (and vindicating) premiss (1) understood in a physical sense. Consider a train starting to move: at first only the locomotive moves (the couplings have some give in them), then the first carriage, then the second, and so on (and there is no reason why apparently rigid bodies could not be organized like this). On the other hand, in the case of the train, the movement of a minority of the parts evidently precedes the movement of the majority, something which is not allowed for in (or at least forms no part of) Diodorus' argument. This suggests that

<sup>62</sup> See Aristotle, *Metaph.* 5.11 (and cf. 9.8; *Ph.* 8.9.261a13–26) for the relations (in general converse) between temporal and logical priority.

perhaps we should prefer some alternative picture which gives some dynamical point to the talk of preponderance: for something to move (in a particular direction) the preponderance of its motive tendencies must be in that direction (which re-establishes a connection with the Aristotelian theory, although the crucial notion, that of the aggregative and compositional nature of force vectors, is just as much at home in the very different physics of Epicurus).

But this model is not entirely congenial to the argument as it is developed (on Diodorus' behalf) by Sextus either. He asks us to 'assume a body composed of three indivisible (ἀμερῆ)<sup>63</sup> parts, two moving and one not: for this is what motion κατ' ἐπικράτειαν requires' (II5). It is unclear whether the unmoving part is unmoving in the sense of (A) its being motionless, or (B) of its not contributing to motion. Consider the argument interpreted in sense B: assume two motile indivisibles and one passenger, as it were. Then add to this three-body system a fourth body – the three-body part, which is moving, will 'outweigh' the new passenger, and so the four-body system will move κατ' ἐπικράτειαν: 'the three indivisibles with which it is moving already are stronger than the added single indivisible' (II6); then repeat the process through five- and six-body systems all the way up to the (suspiciously soritical)<sup>64</sup> 10,000. But

It is absurd, he says, to assert that a body moves κατ' ἐπικράτειαν when 9,998 of its indivisibles are not moving and only two are moving. So nothing moves κατ' ἐπικράτειαν; but if the latter, then nothing moves κατ' εἰλικρίνειαν, from which it follows that nothing moves. (*M* 10.117)

Sextus himself gives the argument short shrift:

It is evidently sophistical and is readily refuted: for motion κατ' ἐπικράτειαν disappears as soon as the first indivisible is added, since there are now two movers and two which do not move. (*M* 10.118)

This is surely right; but a little more may perhaps be said. It seems that Diodorus is illicitly trading on the ambiguity in the idea of something's not

<sup>63</sup> The language of indivisibles (or partlessness) is securely Diodoran and suggests that Sextus is following his source, whether Diodorus himself or some later digest, fairly closely here, although the assumption of indivisibility plays no crucial role in this argument (as it does elsewhere: cf. in particular 119–20, below, pp. 245–6).

<sup>64</sup> 'Suspiciously', because although the argument is not formally a sorites (above n. 61), it does mimic crucial features of such arguments (and not merely in the canonical nature of the numbers involved): we are supposed to be moved, by a series of small incremental moves, each of which seems self-evidently justifiable, to an eventual conclusion which is untenable. On the ancient sorites and its logic, see Barnes 1982b.

moving noted above. The three-body aggregate can move κατ' ἐπικράτειαν when the passenger is added, since, even if the passenger is clearly not moving in sense B, it is moving in sense A (since it is a passenger). Thus Diodorus relies on the fact that it is no longer motionless in sense A to infer (validly) that it is moving (in sense A); but then he slides from that to the fallacious supposition that it is moving in some other sense, since only then will the three-body aggregate 'predominate' over the added fourth body. I cannot see how to construct anything better on Diodorus' behalf; and I conclude that Sextus is right: the argument is indeed sophistical. Given the relatively high current standing of Diodorus' philosophical stock, it may be worth remembering that he was, first and foremost, a dialectician.<sup>65</sup>

### The arguments of Diodorus Cronus: (IV) Two final arguments (M 10.119–20)

The argument of this short passage is not explicitly ascribed to Diodorus; but the language employed is Diodoran, as is its conclusion, that things may have moved but never actually be moving (120; cf. 48, 85, 143).<sup>66</sup> It is worth translation in full:

(i) If a thing is moving, it is moving now; (ii) if it is moving now, it is moving in the present; (iii) if it is moving in the present, it is moving, therefore, in a partless (ἄμερές) time. (iv) For if the present is divided, it will inevitably be divided into past and future, (v) but then it will not be present. (vi) But if a thing is moving in a partless time, it passes through partless places; (vii) and if it passes through partless places, it does not move. (viii) For when it is in the first partless place, it is not moving, since (ix) it is still in the first partless place; (x) but when it is in the second partless place, again it is not moving, but rather has moved. Therefore (xi) a thing never is moving. (M 10.119–20)

That argument is admirably lucid and evidently valid, even if incompletely interpreted. It has received penetrating analyses from Denyer (1981) and Sorabji (1982), which, while differing in detail, concur in their overall

<sup>65</sup> The attitude of Sorabji 1982: 17–21, 345–8, 369–71 is characteristic: Diodorus is 'sparkling', 'ingenious' and 'scintillating'; but Sorabji's terms of commendation refer to Diodorus' dialectical abilities; and as such, not all of his arguments need have been (or even have been intended to be) very impressive.

<sup>66</sup> Thus I follow Denyer 1981: 34–5 and Sorabji 1982: 17–21, 369–71 in accepting it as genuinely Diodoran, although it is not printed as a fragment in Döring 1972.

conclusions, namely that Diodorus did indeed posit, and in his own voice, minimal *extended* units of time, time-atoms, as well as minimal units of space; and with this I am in agreement. It is worth noting that until (x) the argument does not necessarily require space or time to be quantized ('partless' need not mean 'extended and partless'); and it does so there only on certain plausible suppositions, which is as it should be, given the (initially) dialectical context in which the argument is developed. Essentially, Diodorus seeks to establish that it is *only* on the atomic supposition that we can vindicate our ordinary perceptual belief that things move (or rather that they have done so). Sextus, of course, will demur; but that is a story for a later section (142–54 on pp. 255–60).

Effectively, the argument of (i)–(v) works as follows: we infer from the assumption that something *is* moving that it must be moving *now*, and hence that it is moving in the present; but such a present must be partless, since if it is not, it will collapse into past (its earlier parts) and future (its later parts). This 'now' could be partless either because it is unextended and instantaneous (in the manner of an Aristotelian 'now', or present instant: *Ph.* 4.13.222a10; 6.3.234a9), or because it is extended and partless (this part of the argument is suppressed); but if the former, then presumably Diodorus would have argued that it falls foul of Zeno's arrow paradox: nothing can be moving at an instant because in that instant it occupies only its own narrow place (cf. *Ph.* 6.9.239b30–3).<sup>67</sup> Thus if there is to be movement, we need to postulate partless, indivisible, but none the less extended, atoms of time.

All of this is implicit in the argument of (vi)–(xi), particularly in the assumption (again implicit) that the partless places of (vii)–(x) are consecutively ordered with nothing dividing them.<sup>68</sup> But a moving object can take no *time* to traverse a partless space of non-zero magnitude (since that would imply that it was earlier in a nearer 'part' and later in a further 'part'). Consequently motion takes place by instantaneous jerks *between* time atoms, and so once again nothing actually *is* moving, although it can have done so (see further below, pp. 255–60). Here Sextus does not seek to undermine the Diodoran argument but rather lets it stand, as an example (presumably) of an argument *against* motion.

<sup>67</sup> On Zeno's arrow, see Barnes 1979: vol. 1, 276–83; see also White 1982 and Vlastos 1966a.

<sup>68</sup> See Sorabji 1982: 370; and cf. *Ph.* 6.1.231b6–18, esp. 12–15.

**Arguments against those who suppose that space, time  
and body are all infinitely divisible (M 10.121–41)**

Sextus begins this section (121–2) by noting, conventionally enough, that motion involves bodies, space and time, and in regard to all three of them the question arises as to whether or not they are infinitely divisible. Thus there are three general possibilities:

- (1) all of them are infinitely divisible;
- (2) none of them are infinitely divisible;
- (3) some (but not all) of them are infinitely divisible.

And evidently (3) is susceptible of six distinct particular variants (although Sextus argues explicitly against only one of them: 155–67, on pp. 260–2 below).

At 123–7 (= 50F(1)–(3) LS) Sextus considers the views of those who adopt a particular version of option (1), in which, although space is continuous (and hence infinitely divisible), none the less moving bodies cover some extended part of it ‘all at once (ἅθρόως)’ (call that (1a)). These people are named neither here nor in the parallel *PH* 3.78–80 but are usually assumed (e.g. by Bury 1936: 273 n. a) to be Stoics.<sup>69</sup> Sextus refers to them only as ‘the champions of this view’<sup>70</sup> (123, 137), and ‘the aforementioned men’ (139). At 142 he concludes by remarking ‘so these were the arguments it was appropriate to bring up against those (and these are the Stoics) who hold that bodies, spaces and times are all infinitely divided [or: divisible]’.<sup>71</sup> But it is not clear how far back this reference is supposed to stretch. If it covers the whole passage from 123 onwards, then obviously position (1a) is being ascribed to at least some Stoics. On the other hand, the short stretch of argument immediately preceding the conclusion (139–42, = 50F(4)–(5) LS) deals (admittedly in summary fashion) with

<sup>69</sup> The Stoics were indeed committed to infinite divisibility: see Stobaeus, *Ecl.* 1.142.2–6 = 50A LS = *SVF* 2.482 (part): ‘Chrysippus said that bodies are divided to infinity, as are things comparable to bodies, such as surface, line, place, void and time; but while these are divided [perhaps better, ‘divisible’: n. 71 below] to infinity, a body is not composed of infinitely many bodies, and the same goes for surface, line and place’; cf. Diogenes Laertius 7.150 (quoted below, n. 71).

<sup>70</sup> οἱ προεστῶτες: ‘champions’ is Bury’s translation, adopted by LS, and suggests something like ‘foremost proponents’ (i.e. not the only ones, only the most influential). White (1992: 314–15) notes that the ascription to the Stoics is not secure but assumes provisionally ‘that the conception [sc. of motion all at once through a divisible interval] was part of some Stoic doctrine of motion’.

<sup>71</sup> This distinction is not of course trivial, as was apparently recognized by Chrysippus, who avers, in Aristotelian vein, that: ‘division [of matter] . . . is infinite but not to infinity, for there is no actual infinite to which the division can attain; it just never gives out’, Diogenes Laertius 7.150 = 50B LS = *SVF* 2.482 (part).



the proponents of the alternative continuous view, (1b), namely that ‘it covers a divisible interval not all at once, but gradually’ (139). Against the identification of the Stoics with this view is the fact that (1b) was also held by Aristotle and his orthodox followers; but this is a relatively weak consideration. At least as likely, in my view, is the possibility that the parenthesis (‘and these are the Stoics’) is an intruded marginal gloss (it certainly looks like one), in which case Sextus will not have named the proponents of (1a) at all but simply stuck to his rather coy circumlocutions.

At all events, none of this matters much from the point of view of the actual analyses of the arguments, which is in any case difficult enough. Sextus writes:

The champions of this view [i.e. option (1a)] say that the moving body completes the entire divisible interval (ἅθροῦν περιστὸν διάστημα) in one and the same time (ὅφ’ ἕνα καὶ τὸν αὐτὸν χρόνον) and does not cover the first part of the interval with its own first part first, and the second in order second, but that it traverses the whole of the divisible interval entirely and in one go (ἅθρόως).<sup>72</sup> (*M* 10.123)

This text is problematic in various ways, and has given rise to significantly divergent interpretations. Sorabji (1982: 53) discerns in it a precursor to the theory of ‘divisible leaps’ first propounded some centuries later by the Neoplatonist Damascius (*ap.* Simplicius, *in Ph.* 796.32–797.13; cf. Sorabji 1982: 52–60). Michael White, in the course of a mathematically sophisticated discussion of various passages including this one, argues that the best way of understanding arguments such as these is in terms of an admittedly informal anticipation of the modern theory of divisible infinitesimals and hyper-real numbers (White 1982; the argument is reprised in White 1992: 312–24). Long & Sedley, however, find these interpretations ‘extravagant’ and ‘mathematically anachronistic’, preferring to interpret the passage consistently with the Stoics’ holding that motion proceeds continuously in a continuous time (1987: vol. 1, 303–4; II, 301).

There are difficulties with all three approaches. The crucial question involves determining what the phrase ‘in one and the same time’ is supposed to mean. It is contrasted with covering the first part first, and the second second (I am assuming that nothing of importance turns on the rider ‘with its own first part’, which I take simply to indicate that the divisible intervals we are considering are very small, much smaller than any observable moving body; this does not really help the argument and may

<sup>72</sup> ‘In one single go’: LS ad loc.; ‘all at once and completely’: Bury 1936: 273.

be an intrusion). So there is a sense in which the time interval is undivided, even if it is (potentially) divisible (cf. Chrysippus *ap.* Diogenes Laertius 7.150 = 50B LS = *SVF* 2.482: n. 71 above). One possibility is that what is undivided is the *experienced* time; time as we experience it comes divided, but never infinitely so (although there is presumably no particular minimal length for an experience). And while Sextus' own formulation of the view at 123 makes no reference to experienced time as such, such an interpretation would accord with what we learn elsewhere of Chrysippus' views regarding the present:

Chrysippus said that time is the interval of motion in respect of which the measure of speed or slowness is asserted . . . And he says that each thing both moves and exists in accordance with time . . . And he says most unequivocally that no time is ever wholly present. For since continuous things are infinitely divisible, as a result of this division [sc. into continuous and discontinuous?] every time too will be infinitely divisible. Consequently no time is exactly present but is said to be so in a broad sense. (Stobaeus, *Ecl.* 1.106.5–18 W = 51B LS = *SVF* 2.509; cf. *Ecl.* 1.105.8–16 and 1.105.17–106.4 W = 51D, E LS)

In the strict sense, there *is* no present time at all, for the present, strictly conceived, is an instantaneous Aristotelian 'now' (cf. *Ph.* 4.13.222a10; 6.3.234a9); however, a broad sense of 'present' parallels the broad sense of place (above, pp. 223–4 and 240–1). How far will this allow the Stoics to evade paradox? Plutarch was characteristically unimpressed:

It is contrary to ordinary conceptions to hold that future and past times exist, but that the present does not, and that 'recently' and 'presently' subsist [sc. as proper predicates of genuine times] but 'now' does not. Yet this is what follows for the Stoics, since they do not allow a minimal time, or wish the now to be partless, but say that whatever one thinks one has grasped and is considering as being present, one part of it is in fact past while another is future. (Plutarch, *Comm. Not.* 1081c = 51B LS (part))

This argument recalls, and is probably derived from, the considerations which animated Diodorus in his postulation of a partless yet minimally extended present (above, pp. 245–6).<sup>73</sup> But what Chrysippus is apparently suggesting is that there is an extended 'specious present' available to (and perhaps inseparable from and essential for) consciousness, even if reason indicates that time must be infinitely divisible. And so, analogously to the specious present, any observed motion will present itself in speciously

<sup>73</sup> See again Denyer 1981: 38.

unified extended chunks of time. Call this the 'Specious Indivisibility' thesis (SI). Is this what is at issue in (1a)? The case is far from clear.

Sextus begins his argument against (1a) by noting that it is not the case, at least for perceptible bodies and movements, that motion is indivisible in this way: if a man runs a stade, he covers the first half-stade first and the second second (124). But the same is equally true in the case of the traverse of that first half-stade: it too is divisible into first and second halves, which are traversed consecutively; and so on (125). What is more, other features of the process will be evidently consecutive: he will not cast his shadow all at once over the whole distance, for instance (125–6). We are once more in the territory of Zenonian paradox, in this case of that of the Dichotomy, the familiar details of which I shall not rehearse.<sup>74</sup> But Sextus' argument has an unfamiliar twist to it; having argued that in the case of perceptible bodies, motions and times, divisibility reigns, he concludes: 'so what the argument has shown in the case of perceptible things should be accepted by us in the case of the intelligibles as well' (126). He offers no argument for this (perhaps he supposes it to be acceptable as part of the general dialectical background). But such a principle has had a long history in physics (it is still evident, in one form or another, in Descartes and Newton), and was certainly implicitly endorsed by the atomists (the properties of their atoms are scaled-down macroscopic properties).<sup>75</sup> Indeed before the advent of a fully mathematized physics, it is difficult to see how else one might go about conceptualizing fundamental properties. But if nothing else, the last century of physical theory should have laid that principle to rest in any form: far from being an a priori truth, it is in fact empirically unacceptable.<sup>76</sup>

But analogical argument from the perceptible to the non-perceptible is not the only consideration Sextus has at his disposal. 'We can also destroy this view', he notes, 'by deploying a variety of subtle hypotheses against it' (127). The first of these 'hypotheses' (here imaginary, thought-experimental cases) is considered at 127–8. We are to suppose a certain finite interval ('a cubit'; but nothing turns on the particular length),

<sup>74</sup> For the paradox itself, see *Ph.* 6.2.233a21–31; 9.239b9–14; 8.8.263a4–b9; for discussion, see Barnes 1979: vol. 1, 261–73; Vlastos 1966c; Salmon 1970; Grünbaum 1968.

<sup>75</sup> Not that all macroscopic properties have micro counterparts (colours, tastes, and so on, are emergent); but the micro-properties that there are will be identical in form with their macroscopic congeners: see the texts collected in 12 LS, esp. 12D–F.

<sup>76</sup> The principle is interestingly comparable with (albeit arriving at the opposite conclusion from) the argument employed by the atomists in favour of the postulation of conceptual partless but extended minima, by analogy with the existence of such minima in the case of visual perception: Epicurus, *Ep. Hdt.* 56–9; Lucretius 1.746–52, = 9A–B LS; see further below, p. 256 n. 86.

divided in half, and then in half again; and further that the divisions take the form of ‘solid divisors, having the capacity of resisting and bringing to a standstill the moving body’. Then if a body is imagined moving with sufficient velocity to traverse the half of the interval ‘in one and the same time’, it will simultaneously be resisted by both impediments, with the result that ‘the same thing will at the same time both have moved and not have moved’: it will ‘have moved’ over the second quarter in so far as it has traversed the half-cubit, but it will ‘not have moved’ in so far as it is resisted by the first impediment. The argument is confused and poorly expressed, while the introduction of the solid impediments seems arbitrary, and indeed fatal to its coherence; after all, if the first impediment really is capable of bringing the mover to a halt it will never reach the second at all, and hence it will not ‘at once both have moved and not have moved’ over the second part of the interval.<sup>77</sup>

On the other hand, Sextus might have argued, the language just used is, *ex hypothesi*, incoherent: if we are to suppose that the first impediment stops the mover first, it stops it *before* it can reach the second, that is, *earlier* in the traverse. But if the traverse is indivisible, there can be no earlier and later. In response, we might say that the spatial interval is divided: there is an ‘earlier’ and a ‘later’ in the spatial array, looked at from a particular direction of travel, even if there is no (discernible) temporal succession involved in the traverse. So if there is a solid divisor at a distance of one-quarter cubit from the starting point, that will impede the object ‘before’ (spatially) it has a chance to travel to the second impediment. And no paradox ensues. Consider, however, two distinct bodies moving on parallel tracks at the same velocity, one of which is blocked after a quarter-cubit, the other after a half. In that case, it seems that one will cover twice the distance that the other does in the same (undivided) time; and yet they were moving *ex hypothesi* at the same speed, which is absurd. This is in fact the situation considered at 131–6 (or at any rate it is equivalent to it); and there the conclusion is drawn that two bodies moving at the same speed will cover different intervals in the same time, which is said to be evidently incoherent<sup>78</sup> (M 10.131, 133).

<sup>77</sup> Again the language recalls, no doubt deliberately, that of Diodorus; and indirectly that of Aristotle too (above, pp. 237–8).

<sup>78</sup> παρὰ τὴν ἐνάργειαν: this phrase occurs three times in this passage (see also 138), and again at 166 (see n. 94 below), but apparently nowhere else in Sextus (see the relevant entry in Janáček’s contribution to Mutschmann *et al.* 1954); this suggests that he is following a particular source quite closely here. ἐνάργεια cannot here bear its usual sense of ‘perceptual evidence’ (cf. 66, 67, 68, 168) either: it is conceptually, rather than perceptually, obvious that bodies moving at the same

At 134–6 Sextus derives the ‘perfectly absurd’ (136) conclusion that the same body is both faster and slower than itself, since ‘on the hypothesis under consideration’ the body passes over the whole distance, and any of the parts which make it up, in the same time, so that ‘in so far as it completes the whole distance in this time it will be faster, but in so far as it covers only a part of it, it will be slower’. Here the argument is not equivalent to that which can be brought against actually atomic spaces and times (cf. 129–31, which is expressly couched in Epicurean terms: see further below, pp. 255–6), since by hypothesis we are talking about covering *divisible* distances: the object must get somewhere (half the distance) first; but the time in which it does so is not distinct from that in which it covers the whole interval.

We are to suppose in these cases that the time is not actually indivisible, but only (in some sense) undivided; it seems as though there *should* be some possible division of the time into smaller times, since it is by hypothesis continuous, a division which would preserve the Aristotelian ratios holding between distances and times for motion at a given speed. But then in what sense is the time actually undivided, and what problem is such a supposition designed to solve? The precise interpretation of these issues is controversial. Richard Sorabji sees in this passage a precursor to a view he ascribes to the sixth-century Athenian scholarch Damascius, that of ‘divisible leaps’. ‘The history of the idea of infinitely divisible leaps has not been written’, he noted (in 1982: 53); and, his own treatment apart (1982: chs. 5, 25), that still holds largely true. Damascius reports that others had held that motion ‘is not accomplished in indivisible (?) units but rather progresses in a whole stride at one go’ (Simplicius, *in Ph.* 796.32–4), that is, motion takes place jerkily, by instantaneous leaps over finite distances, followed by periods of rest; and it is perhaps the proponents of the views criticized here by Sextus he has in mind (as some of the language suggests). Damascius’ innovation, according to Sorabji,<sup>79</sup> is to suppose that there are temporal ‘leaps’ as well, but that these too are divisible.<sup>80</sup> But if the traverse of any finite interval is genuinely temporally instantaneous, then

speeds cannot cover different intervals in the same times, and that a body which covers more distance in the same time as another is faster than that other (which is described as being ‘φαινόμενον καὶ ἐναργές’: 135).

<sup>79</sup> A different account is given by Sambursky 1962: 19–20.

<sup>80</sup> The divisible ‘leap’ is actually the period of rest between each instantaneous event of motion: because these are stretches of continuous time, they may be of different durations (indeed such differences of duration will account for differences of speed), and may be infinitely conceptually divided.

that ‘time’ is clearly not divisible in any sense. The problem is to make sense of something which is in some sense divisible, yet not divided (or perhaps even divisible) in another sense.

At this point it is worth repeating that Sextus’ overall strategy in this section is dilemmatic: at 139–41 he summarily dismisses the proponents of (1b) as being hopelessly embroiled in Zeno’s paradoxes: if space, time and motion are all genuinely continuously divisible, then we can say of any stretch of any finite motion whether or not it precedes any other stretch, and so parts of the motion can be continuously ordered in both space and time; but there will be no first moment of movement, and no first point of distance covered; and if there are no first points, there is no motion. Dichotomy again; and again it seems that Sextus pays too little attention (or rather none) to Aristotle’s subtle treatment of it. Aristotle agrees that there is no first point beyond the terminus of any given continuous magnitude; but since motion takes place in, and is defined over, stretches of time and space, no problem need arise. Any finite interval, whether spatial or temporal, can be further divided; and such divisions will produce further intervals, which, for motions of continuous velocity, will always preserve the same ratio. For all that, there is no first instant of motion nor is there motion (or, for Aristotle, rest) at an instant (*Ph.* 6.1–2). But at all events, if one accepts that option (1b) is incoherent, then we are left (if we are continuum theorists) with (1a). Sextus seeks to show how (1a) is itself incoherent as well, or, failing that, how it reduces to some discontinuous picture.

This structure is perhaps more clearly exhibited in the corresponding passage of *PH* (3.76–80).<sup>81</sup> If you adopt (1b), then for the familiar Zenonian reasons there will be no first moment of motion, and hence no motion (*PH* 3.76); if on the other hand movements and spaces and times are reducible to atomic parts, then all motions will be of equal velocities, which is absurd (77: see below, pp. 259–60; *M* 10.154); but if you seek refuge in (1a), then you must say how large the interval is through which motion takes place in one go (ἄθρόως). It must be either (i) limitless, (ii) finite (small) and precisely bounded, or (iii) small and not precisely bounded. If (i), then all motion will be infinitely fast, which is absurd (79). But if (ii), everything will move at the same speed, which is again absurd (79: the assumption is that the times of the ἄθρόως motions will be the same in each case, which the opponent need not grant: see below, pp. 254–5 n. 82). But if (iii), then we ask what happens when, to the imprecisely determined interval (which is

<sup>81</sup> The following reconstruction is indebted to White 1982: 244–6.

considered as being indeterminately less than some finitely determined interval), we add a hair's breadth; and so on, soritically. If at some point you say that you have exceeded the minimal distance contemplated, then we will have arrived at a precise minimum, and so the position collapses into (ii); but if no halt is ever called it collapses into (i) (80). In other words, option (iii), where we refuse to specify the precise dimensions of the non-zero interval in question, is untenable.

Michael White (1982: 245–6) sees the intervals in (iii) as examples of (or at least precursors to) the sophisticated notion of divisible infinitesimals, infinitesimals which are conceived as not being of the same size, but as differing from one another in such a way that there is no determinable difference in size between them. Thus they are not equal to one another; nor are they unequal either;<sup>82</sup> and while there is an upper bound among them, there is no least upper bound. Moreover they do not obey 'Archimedes' axiom': there is no  $n$  such that multiplying any such infinitesimal  $n$  times will yield an interval exceeding any finite non-infinitesimal interval.<sup>83</sup> If this is correct, then they will avoid the threatened sorites: no addition of suitable (infinitesimal) 'hairsbreadths' will ever result in any non-infinitesimal finite magnitude: you can add them *ad lib.* without ever producing anything measurable, much less the infinite interval of option (i). This is an attractive (if difficult) view; but it stretches credulity to suppose that ancient mathematicians, with their relatively limited conceptual resources, could ever have seriously anticipated such exotic intellectual dances. At most, they may have been drawn towards positions which might have been given precise expression using such tools; and in default of their actually possessing them, it seems that sceptics get the better of the argument here.<sup>84</sup>

<sup>82</sup> The mathematics for this derives from Abraham Robinson's development of non-standard analysis involving 'hyperreal' numbers; White intriguingly sees an anticipation of this in Chrysippus' 'solution' to Democritus' cone paradox as reported (in characteristically hostile fashion) by Plutarch at *Comm. Not.* 1079D–1080D (= 50C LS); see especially 1080C, where Plutarch derides the Stoics' claim that the following conditional is false: 'if things are not equal to one another, then they must be unequal to one another'. I agree with White that this is the natural way of taking the sentence, *contra* Cherniss' attempt (1976: 826 n. b) to construe the Stoic position less paradoxically, and to convict Plutarch of outright misrepresentation. But these issues stray well beyond the admittedly ill-defined boundaries of the current study. On the cone paradox, and Chrysippus' response, see also Sambursky 1959: 93–5; Sorabji 1982: 341–2; Hahm 1972; Konstan 1987: 20–3, 29–30; and LS, ad loc.

<sup>83</sup> For details, again see White 1982: 241–2, and esp. 245–6 and n. 25.

<sup>84</sup> Moreover, the reference to hairsbreadths is Sextus' own (or at any rate that of his sceptical source); and the use of soritical moves here is clearly aimed against the holders of the view under attack, a procedure which only makes sense if the hairsbreadths in question are more than infinitesimal. It is possible that the sceptics are seeking to turn their opponents' position against them: the opposition would then have claimed that their infinitesimal additions did make a difference (in some sense) to

So if interpretations in terms of divisible leaps or infinitesimals (or the like) are to be ruled out, it looks as though we are left with some version of SI. The Stoics' response to the Zenonian problems of the continuum, as they apply to motion, will have been to say that, while in theory all intervals are susceptible of infinite division, as a matter of fact no intervals are so divided (recall the Chrysippean account of infinite divisibility: Stobaeus, *Ecl.* 1.142.2–6 W; Diogenes Laertius 7.150–1 = *SVF* 2.482 = 50A–B LS, an account which, so far as it goes, recalls that of Aristotle, *Ph.* 3.6); and that whenever we are aware of movement we are aware of its having occurred and having taken time, even though the experienced time seems partless. Sextus' response to this, then, is that it simply misses the point: it does not matter whether experienced time and motion come in apparently discrete chunks (so that no problem arises about locating the first in the series): the difficulty for the continuum-theorist lies in the ineluctable mathematical fact that, in a finite and continuous magnitude, there is no immediate successor to its bounding point. Thus the pseudo-solution of (1a) collapses either into (1b), genuine continuity (if the so-called 'indivisibles' are merely psychologically so) or into (2), the hypothesis that all the relevant magnitudes are in fact quantized; which is what Sextus turns to next.

### Arguments against those who suppose that all three are quantized (M 10.142–54)

On the other hand, those who, like the Epicureans, have supposed that everything is reducible to indivisibles are embroiled in even more intractable difficulties.<sup>85</sup> (M 10.142)

He begins by reprising the argument of Diodorus (143: cf. 85–90: pp. 234–5 above), before turning 'to attack the Epicurean position by way of a hypothesis' (144). We are to imagine an interval composed of nine indivisible spatial atoms ('topons'), with two atomic bodies moving across it from

size, but not one which, no matter how many times iterated, ever reached the threshold of perception (presumably this was postulated in order to allow for minimal intervals of different sizes, which in turn would allow for there to be a range of velocities: see further pp. 256–9); the sceptics would have retorted that such a notion of intervals of non-zero magnitude which, no matter how many times multiplied, never reached any discernible finite size, was incoherent; and so too apparently, would the Epicureans (below, p. 256 n. 86). On this, see Konstan 1987: 29–30.

<sup>85</sup> It is a standard sceptical trope that manoeuvres adopted by dogmatists to evade one sceptical attack land them in an even worse position: e.g. M 9.239, 263, 291.



opposite sides at equal speeds. Each will evidently cover its first four topons in the same time. But what happens next? There are three alternatives:

- (1) both stop after covering four topons;
- (2) one stops while the other covers the central topon;
- (3) they each start to traverse the central topon and meet in the middle (144–5).

(1) is ‘deeply implausible’ (146), since what is there to stop them? Both have empty space in front of them. (2) runs counter to the hypothesis that they are travelling at the same speed (146); while (3) falsifies the atomic hypothesis itself: if these really are indivisible atomic units of space there is no ‘middle’ for the bodies to meet in; moreover, the bodies themselves will be conceptually divided: half of each of them will be in the same topon, while their other halves will occupy half of the adjacent topons.<sup>86</sup>

Sextus next considers another thought-experimental ‘hypothesis’:

Let there be some small measuring-rod, marked along one side with points, and let this revolve around from one of its ends over some plane surface at one and the same time. As the end revolves, circles will be described which differ in size from one another . . . So since the time of the revolution is one (let it be partless), I ask how it can be that, when it has been stipulated that the time of the revolution is one and the same and the motion too is one, the circles have come to be different from one another . . . For it is not possible to say that there is some difference between the partless times in

<sup>86</sup> This latter consideration is hardly critical: after all, Epicurus allowed that his atoms were conceptually divisible into minima. Perhaps Sextus means us to suppose that each body is a single minimum; but there is no reason to think that Epicurus would have allowed such a supposition. His minima are conceptual components of atoms, having certain peculiar properties (as minima they are partless, and hence cannot have edges: see 9A–C LS); but bodies are not compounded from them any more than for Aristotle points compose a line (*Ph.* 6.1); nor, apparently, are there any atoms consisting of a single minimum (*Ep. Hdt.* 69, = 9A LS [part]). Indeed, David Konstan has argued that Sextus just misses the point here: no Epicurean magnitude could have been composed of adjacent minima, since Epicurus *accepted* Aristotle’s contention that partless entities cannot be adjacent to one another and still in contact with each other (Konstan 1982 and 1987: 6–10; Konstan’s interpretation is indebted to David Furley’s pioneering 1967: 104–21). The idea of an array of contiguous minima then is incoherent. But this is itself deeply problematic: after all, there is nothing *other* than minima in magnitudes; it is not that between any two minima there is some sub-minimum to *prevent* them from being in contact and hence having parts. Moreover, the minima seem to be of non-infinitesimal magnitude: Lucretius (2.485–99) considers the consequences of adding a series of minima together: sooner or later their aggregate will cross the threshold of perception; and here at least it seems both as though the minima obey Archimedes’ axiom, and as though they can be contiguously aggregated. If this is right, then the solution proposed by Konstan 1987, that the minima are so numerous as to make it impossible to quantify them at all, and hence impossible to apply predicates such as ‘odd’ or ‘even’ to any collection of them, becomes altogether less plausible. Konstan 1987: 10 acknowledges that the Lucretius passage ‘is an embarrassment to my argument’, and I do not find his attempt to spare its blushes convincing.

respect of magnitude, and as a result of this the circles which were inscribed in larger partless times were larger and those in smaller smaller. For if one partless time is larger than another, the time is neither partless nor the smallest, and the moving object does not at all events move in a partless time. But nor could one say that, while all the circles are inscribed in one partless time, the parts of the revolving measuring-rod are not of equal speed, but some revolve faster and others slower . . . If in reality some parts move faster and others slower, the measuring-rod should have been torn apart in the revolution, or at least bent, since some parts of it go ahead, while others follow. (M 10.149–53)

Assume a rod that revolves around its end point in one minimal unit of time: either

(4) all parts of the rod move at the same speed,

or

(5) all move at different speeds.

If (4), then since the circles are all of different lengths, and  $V = d/t$ , there must be partless minimal times of different durations, longer for the longer circles, which is contrary to Epicurean assumptions (although perhaps not to those canvassed in the previous section). Against (5), Sextus claims that movement at differential speeds will place stresses on a supposedly rigid measuring-rod, which will either bend or shatter it – but neither of these things happens. It is the assumption of spatial quantization that yields this result: in order for the parts of the rod to move at different speeds, different minima must jump more or fewer minimal spaces. Moreover, on the supposition that such minimal spaces are laid out like squares on a chessboard (or in some other contiguous array), then adjacent parts of the rigid rod will indeed have to be dragged apart from one another – the gradations of increase in speed, as well as deflection of trajectory, cannot be smoothly continuous (of course, there can be no ‘true’ circles in such a spatial geometry, for there can be no continuously deflected line).<sup>87</sup> While one corporeal minimum covers a single spatial minimum (instantaneously), its neighbour may have to cover two – which implies the rupture-threatening dislocation.

<sup>87</sup> The alleged incompatibility of atomism with geometry was argued by the early Peripatetic Eudemus: Simplicius, *in Ph.* 930.34–931.6; see also Ps.-Aristotle, *LI* 971a6–13; on Epicurean attitudes to standard (Euclidean) geometry, and whether they modified it, proposed some alternative or simply rejected it, see Vlastos 1965, 1966b; Mau 1973; Sedley 1976; Konstan 1987: 11–14.

The assumption that the time of the movement be a single minimum is not, as Sorabji (1982: 390) notes, necessary to, and indeed may be an embarrassment for, the argument;<sup>88</sup> and it does not figure in the later Islamic reworkings of it. Sorabji (388) quotes a passage from Maimonides (*Guide for the Perplexed* 1.73, pr. 3) attacking an atomistic concept of motion in which bodies move instantaneously across minima and then pause for a certain number of time-quanta before jumping the next minimum; he considers a revolving millstone, and the relation between the movement of its outer and inner parts (the situation is entirely analogous in all significant respects to that of Sextus' measuring-rod). The atomists are taxed with the consequences of their views (that each minimal part moves, if it does, instantaneously across some number of minima; or alternatively, that each instantaneous traverse of a minimum is followed by one or more atomic periods of rest):

'You cannot say that the motion of the latter [sc. an inner circle] was interrupted by more moments of rest: for the whole moving millstone is one coherent body.' They reply, 'during the circular motion, the parts of the millstone separate from one another ...' We ask again, 'How is it that the millstone, which we perceive as one body, and which cannot be easily broken, even with a hammer, resolves itself into its atoms when it moves and becomes again one coherent body, returning to its previous state as soon as it comes to rest ...?' Their reply ... is to the effect that the perception of the senses cannot be trusted, and thus only the evidence of the intellect is admissible. (trans. Friedländer 1904)

This text reports Islamic atomism, obviously, and it may reflect developments not anticipated in classical times. But the objection is posed with great clarity (greater perhaps than in Sextus): the atomists' commitment to indivisible leaps across atomic spatial intervals commits them also to supposing that at the microscopic level the apparently rigid structures composed of atoms must literally come apart: indeed, even more counter-intuitively, the atoms themselves must come apart.

The reported Islamic atomist response amounts to saying that if intellect and senses conflict, then the game goes to the intellect, provided (presumably) that it can make out a case for some conclusion's *a priori* certainty. Such manoeuvres have a classical pedigree. In atomism they go back to Democritus' celebrated dialogue between the senses and the

<sup>88</sup> He remarks that 'an atomist could protest that the ruler's returning to the same position every time-atom would not differ from its resting'; but one can envisage ways of determining whether it had moved or not: place an obstacle in its path halfway round the circuit and see what happens; or tie a paint-brush to the end of it.

intellect (fr. 67B125 DK); and one may perhaps discern their origin in Eleatic doctrine, although the ways in which the conflicts are resolved are quite different in each case. The atomists, unlike the Eleatics, do not reject the validity of sense-information as such at all; on the contrary, they are in this sense thorough-going empiricists (Epicurus, of course, notoriously held that all perceptions were true). Rather the idea is that in certain cases, in order to account for the facts as revealed by the senses, we will be forced by a priori considerations to suppose that the fundamental nature of reality that underlies them must be quite different in structure from what our ordinary, perceptually based physical intuitions initially incline us to believe. In effect, the atomists are saying, no matter how hard (or even impossible) it is to visualize how things can operate like this at the microscopic level, none the less they must do so: no alternative makes any sense at all.<sup>89</sup> This does not amount to a wholesale rejection of the evidence of the senses; indeed empirical evidence is the starting point of all such arguments. What is rejected is rather a commonsensical inference from ordinary, macroscopic phenomenal behaviour. To this extent sophisticated atomists allow themselves to cut themselves free of the tendency to model the properties of the microscopic world on their macroscopic counterparts; and in this case they might well say that we simply cannot apply the ordinary notions of rigidity at the minimal level. Again, such moves are familiar in contemporary physics, particularly high-energy physics (although here the exigencies of the mathematical modelling of empirical phenomena replace those of the pure a priori). But Sextus' argument is still pointed; and it shows how far any thorough-going atomism will need to un-moor itself from its initially commonsensical foundations.<sup>90</sup>

Sextus retails one last, brief argument against the atomists: if their views are correct, everything must move at the same speed if it moves at all – but that is evidently false (154). The objection (which is also urged at *PH* 3.77: see p. 253) presumes that the only way for motion to occur in a fully quantized universe is for things to move one atomic space with one minimal part in one atomic time interval; and if that holds then the threatened result clearly follows (at least if all such intervals are of the same size). The conclusion can be avoided either by supposing that atomic motion is jerky, punctuated by (differing) periods of rest (as canvassed

<sup>89</sup> Atomists regularly cast their arguments as necessary inferences from evident phenomena: if there is motion, there is void; there is motion; so there is void (see e.g. Lucretius 1.329–45).

<sup>90</sup> No sceptic of course would accept the principle that reason should in some circumstances trump the senses; rather reason and perception are incommensurable: cf. *PH* 2.64–9.

above in connection with the revolving rod),<sup>91</sup> or more simply by supposing that  $V = d/t$ , where  $d = n.m$  (where  $n$  is any whole number, and  $m$  is a spatial minimum), and  $t$  represents one time-atom. There will thus be a minimum speed slower than which nothing may move (where  $n = 1$ ), but no conceptually necessary maximum speed (although there may of course be other, physical reasons why  $n$  could not exceed some particular finite number).

### **Arguments against those who think that some only are infinitely divisible (*M* 10.155–67)**

Finally Sextus turns to the third of his initial options (122: p. 247 above), or rather to one species of it, which he attributes (probably falsely)<sup>92</sup> to Strato of Lampsacus, namely that while space and body are continuous, time is quantized: ‘the moving body traverses the whole of the divisible distance at one go (ὅλον ἀθροῦν μεριστόν διάστημα) in an indivisible time (ἐν ἀμερεῖ χρόνῳ), and not in respect of the first part first’ (*M* 10.155). Sextus objects in now familiar vein that such an assumption entails absurdities. He asks us to consider a body covering (at uniform speed) an interval of four fingers in two time-atoms (chronons), so that it covers two fingers in each chronon (156). Now subtract one finger-width: how long will it take the body to cover the three-finger interval? It must be one and a half chronons, he argues: for the object is moving with uniform velocity and it covers the first two fingers in one (157). Sextus then considers the case of adding a finger: the same considerations will apply, although in this case Sextus also argues that the alternative – that the body will cover the first four fingers in two chronons, and the fifth in a further single chronon – is equally absurd: ‘it will then be both fast and slow at the same time’ (158). A third case is

<sup>91</sup> The duration of each rest period would have to be some integral number of time-atoms – but nothing paradoxical results (directly at least) from that.

<sup>92</sup> Simplicius (*in Ph.* 789.4ff.) reports Strato as rejecting Aristotle’s account of time as ‘the number of motion’ precisely because numbers are discontinuous, ‘while motion and time are continuous’. Two other texts adduced (e.g. by Sambursky 1959) to show that Strato did (at some other time?) adopt a discontinuous view of time (*in Ph.* 789.14–15; Damascius, *Dubitationes et Solutiones* 2.236.9–13) need not be interpreted so as to yield that conclusion (see Sorabji 1982: 377–9); Sorabji also offers a plausible suggestion as to how Sextus might have come to miscategorize Strato as a theorist of partial quantization: he rejected Aristotle’s argument (*Ph.* 6.1.231b18–232a22) that continuousness of space entails continuousness of time (but then proceeded to offer separate arguments for the continuousness of each). Of course, Sextus will not have cared greatly whether or not Strato endorsed any particular position, its being enough for his dialectical purposes that it had been elaborated for whatever reason. Strato’s definition of time as ‘the measure of motion and rest’ is mentioned at *M* 10.177 and 228.

considered at 159–62: suppose a body to be falling at such a speed as to complete a fall of ten cubits in one chronon (Sextus evidently does not consider the falling body to be accelerating: and acceleration involves its own difficulties for quantized times);<sup>93</sup> then add a further cubit to the fall. Either the body will stop in midair above the final cubit and hence ‘will come to a halt causelessly’ (159), which is absurd (161); or it will keep on moving and cover the final cubit in a tenth part of the supposed minimum time, in which case it is not a minimum at all (162).

All of these cases involve the same conceptual considerations; and to evade the absurd conclusions, temporal atomists need to make some conceptual adjustments. Most obviously, they might reconstrue particular speeds as capacities for covering maximum distances in one time-atom. In the case of the falling body, it will cover the first ten cubits in one chronon, and the eleventh in one chronon as well, although it would have taken no longer to cover a further nine. This can be conceptualized as involving either a slowing down at the end or the speed’s being averaged over the whole (think of the motion as instantaneous, but the intervening rest period as quantized). In either case, a sceptic may object that something is occurring for no proper reason: what is slowing the body down? But then the atomist could reply that it is the structure of space and time itself that is doing the slowing, which is perhaps initially counterintuitive, but not for all that absurd.

Next Sextus asks where the object will be during its instantaneous traverse:

If it completes the whole of a divisible distance in one partless time, it will necessarily come to be in all of the parts of the interval in one and the same time. But if it shall come to be in all of the parts of the interval in one and the same time, it will not have traversed the interval but will have occupied it; which is absurd. (*M* 10.163)

Sextus supposes that the moving object must somehow be in all parts of the interval at once; certainly it cannot be in them successively. But then, suppose that the first half of the distance is heated and the second chilled, the body will have to be simultaneously heated and chilled (or illuminated and darkened); which is incoherent<sup>94</sup> (164–6). Sextus seeks to convict the

<sup>93</sup> Essentially, the quantum-theorist must suppose that acceleration occurs by the addition of discrete increments of speed: there can be no such thing as continuous acceleration. This is a consequence not only for quantized views, but also for those such as Aristotle’s which insist that velocity can only be given meaning over discrete stretches of distance and time (*Ph.* 6.3.234a24–34; 6.237a11–17; 10.241a15–17), although of course for Aristotle this fact cannot entail the quantization of space or time – there is no smallest interval with which to determine a particular velocity.

<sup>94</sup> παρὰ τὴν ἐνὰργειαν: not, as Bury translates, ‘contrary to the evidence of the senses’; see n. 78 above.

time-atomist of contradiction; but it is not contradictory to suppose something to be simultaneously heated and chilled (or indeed partially illuminated); and nothing commits the atomist to supposing that the body is both wholly hot and wholly cold (or wholly darkened and wholly illuminated) at the same time. Here again Sextus' arguments force the atomists to come clean about the conceptual consequences of their position, some of which run counter to ordinary intuitions. But counter-intuitiveness is not equivalent to a priori falsehood; and atomists have admirably strong stomachs when it comes to tolerating such indigestibilities.

Sextus has one final shot in his sceptical locker. At 166–7 he argues that time atomism requires that anything which moves must do so infinitely fast. The structure of the argument is not entirely clear, but it seems that we are to suppose an object moving with velocity sufficient to allow it to cover, in a single atomic time, a certain distance which can be divided into eight parts, AB, BC, etc.:

Now, if the moving object completes a divisible interval in one and the same time, it will be able to traverse BC in the same time in which it traverses AB; but then it will traverse CD in the same time, and so on to infinity, so that in one partless time it will traverse the whole distance of the earth. (167)

The idea seems to be that since it takes one chronon to cover the first distance, it can take no extra time at all to cover the second; but if it can cover these additional distances in no time at all, then it can cover any number of them in the single atomic time. Again, the time-atomist can resist this conclusion by construing velocities as velocities for maximal traverse. A body travelling at eight units per chronon can travel no further than eight units in each time interval, although it may, for a variety of reasons, cover fewer *and still have been going at the same speed*. It is only by surreptitiously introducing considerations deriving from the continuum that the atomists can be convicted of self-contradiction or absurdity. On the other hand, rejection of those intuitions comes at a price, which may (or may not) be worth paying: and on that issue, as it happens, the jury is still out.<sup>95</sup>

<sup>95</sup> See Sorabji 1982: 381–3, for a very brief review of modern temporal atomisms. See also Newton-Smith 1980: 114–21.

### Conclusions

Where does all of this leave Sextus? And what is the nature of his project? He is seeking, here as elsewhere, to set up a set of divergent accounts (διαφωνία λόγων), an undecidable (ἀνεπίκριτος) or equipollent (ἰσοσθενής) dispute between opposing positions (*PH* 1.26, cf. 202–5; 3.65), in this case as to whether motion exists or not (*M* 10.45–9, 69, 168). But the contest might well appear to be an unequal one. Even if the dogmatists disagree about how motion occurs, and as to how to characterize and taxonomize its various species (e.g. *M* 10.37–44), and about the structures of space, time and body that any acceptable account of it presupposes (121–68; cf. 85–120), by far the majority of them still agree that motion exists, as Sextus himself allows (45). Only the Eleatics (and on one interpretation Diodorus) are ranged against; what is more, ordinary commonsense experience, βίος, unequivocally supports its existence as well (45, 62–3, 66–9, 168; cf. *PH* 3.65–6, 81). Yet in both *M* and *PH*, in summing up the overall import of the argument, Sextus presents the overarching διαφωνία as pitting theoretical arguments *contra* ordinary appearances (τὰ φαινόμενα, ἐνάργεια) *pro* (*M* 10.69, 168; *PH* 3.66, 81): theoretical argument apparently has no role to play in establishing that motion does exist; but Sextus has already admitted that the majority of physicists are agreed in holding that it does.

This difficulty may seem susceptible of a ready resolution: although most physicists do indeed endorse the reality of motion and argue in favour of their own preferred analyses of it, in order to establish its *existence* they simply appeal to ordinary experience (*M* 10.66–9). But this will not entirely do; for it still does not tell us why Sextus feels justified in thinking that the upshot of the discussion of the dogmatic διαφωνία regarding the correct analysis of the concept should tell in favour of its non-instantiation, and hence as a counter-weight to the ordinary considerations that tell in its favour. Here it is tempting to think that Sextus is at least implicitly (and dialectically) relying on the principle that if motion does exist there must be some correct theoretical analysis of it; but since (or so his lemmas contend) there are none, it does not. But this is too quick; the most that any such complex argument can establish is that *as of now* there is no such satisfactory account, not that there never could be one (and this is of course perfectly in line with the official Pyrrhonist attitude – whatever else it is, it is not negatively dogmatic: *PH* 1.1–3, cf. 33–4).



The argumentative structure is complicated, and the conclusions to the various lemmas repay further attention. At the end of the complex dilemmatic argument of 70–84 Sextus couches his conclusion in the form of a complex conditional: *if* what moves is moved neither by itself nor by something else, *and* this range of options is exhaustive, *then* ‘we must say that what moves does not move’ (84). The arguments have, naturally, been presented as being at least provisionally persuasive; but Sextus implicitly leaves open the possibility – as of course he should – that they may turn out not to be. Similarly conditional is the conclusion to Diodorus’ first argument (*M* 10.90); but here the possibility of further dialectical moves is actualized: first five objections are raised against it, then the objections themselves are countered in Diodorus’ voice. And although on occasion Sextus will apparently endorse the plausibility of a particular argument or counter-argument (or alternatively dismiss it as inept: e.g. 95, answered at 110–11; cf. ‘the less weighty and more sophistical’ arguments of 112–17), again these should not be taken to be definitive pronouncements. Finally, the last set of arguments involving continuity and discontinuity (121–68), are also given a conditional conclusion, albeit again one in which the relevant disjunction of individually refuted possibilities is supposed to be exhaustive (168), but where too the possibility of further argumentative refinements is not ruled out, as indeed it should not be, given the avowedly open-ended nature of Sextan scepticism (cf. *PH* 1.33–4). When Sextus declares proleptically that, no matter which alternative is adopted, ‘the account (λόγος) concerning motion will be found to be ἄπορος’ (*M* 10.122), that is, to offer no solution, this should be read as a report on the current apparent state of play, and not as a definitive and settled result.<sup>96</sup>

So far, then, a reasonably lucid scheme has emerged, consistent with the maintenance of what I have called the architectonic structure of the argument. And the fact that the dialectic within each subsection is itself at times serpentine tells in favour of, rather than against, such an analysis: all argument, for Sextus, is provisional, and any ‘position’ is set up only to be undermined again; and this is true even where Sextus allows himself to claim that particular accounts have been refuted (e.g. *M* 10.131, 137), or shown to be impossible (156, 165). Nor does it matter at how many levels these phenomena occur: all of them are conducive to the induction of general suspension of judgement (ἐποχή). Thus while it is possible that such apparently dogmatic passages do bear the hallmarks of an earlier,

<sup>96</sup> For this crucial feature of Pyrrhonism, see Hankinson 1995: 27–30, 297–303.

refutational Pyrrhonism grafted onto Sextus' mature structure, they need not be read in such a way.<sup>97</sup>

If this is right, then Sextus' sceptical approach in the section on motion is consistently 'mature'. But what, then, should be the upshot of all of this? And how, finally, are we to understand the different sides of the architectonic opposition? These questions have an obvious bearing on the fundamental debate concerning the nature of Sextus' scepticism: what sorts of things fall within the ambit of sceptical doubt? It is tempting to read the arguments against the various dogmatic accounts as involving an 'urbane' scepticism;<sup>98</sup> what is being attacked is the pretensions of the dogmatists, and the rationality of their commitment to δόγματα in the sense of 'assent to any of the non-evident objects of scientific inquiry' (*PH* 1.13; cf. 14–17). Against this supposition, however, is the very nature of the architectonic opposition itself: for there to be a genuine διαφωνία, the supposedly equally balanced considerations on each side ought to be *pro* and *contra* the same thing. It is not that there are two concepts of motion, an ordinary, non-theoretical one which is in some way immune to sceptical argument, and a dogmatic scientific one which is not. In that case there would be nothing to suspend judgement about. Hence the sceptic ought to be suspending judgement about the existence of motion in the most general, ordinary and inclusive of senses, which in turn suggests that his scepticism is of the radical kind: it will be 'rustic' as opposed to 'urbane'. It will not be about the existence (ὑπαρξις) of motion in some theoretical sense that the arguments are equally poised, since those of ordinary life (βίος) do not support its existence in any such sense.

Yet the methodological claim of *PH* 1.13 cannot simply be ignored. Moreover, the Sextan sceptic is, in a sense, a *partisan* of the appearances and of βίος (*PH* 1.17–24). And so to that extent, and in the same sense, he should come down on one side of the architectonic opposition, his only constraint being that he should do so undogmatically. Basically, I think, this means not elevating the claims of perception and ordinary life to theoretical status (on the question of the relative priority of the senses over

<sup>97</sup> For the view that Sextus, in his considered moments, represents a later, post-Aenesidemean Pyrrhonism see Woodruff 1988 and Bett 2002; I used to endorse a version of this position (Hankinson 1995: 121–8) but have recently (Hankinson 2010) come to reject it, largely as a result of Schofield's magisterial 2007. Sextus' distinction (which is owed to Aenesidemus: Photius, *Bibl.* 212.170a3) between general and special sceptical arguments (cf. *PH* 1.5–6, 241; 2.1; *M* 7.1; 8.14) is relevant here: the general arguments embody the general structure of Pyrrhonism; the special ones, in themselves do not: they are refutational in form, but not in general import.

<sup>98</sup> Borrowing the language of Barnes 1982a; for other seminal contributions to the debate, see Frede 1979 and Burnyeat 1980b, collected in Burnyeat & Frede 1997. And see now Barnes 2007.

the intellect as criteria, Sextus is consistently sceptical: see e.g. *PH* 1.31–3; 2.48–69, esp. 66–9).<sup>99</sup> If this is right, then the claims of ἐνάργεια and the φαινόμενα play two roles in the sceptical programme concerning motion, only one of which is evident on the surface. First, they provide a counterweight to the arguments that seek to undermine its coherence (and the refutations of the various dogmatic attempts to render it coherent). But once you have been driven to suspension of judgement (ἐποχή) regarding the question of whether there really are good reasons to suppose that motion exists rather than not, then the phenomenal force of βίος is free to do its own affective work. It is not that the Sextan sceptic exactly insulates his scepticism from ordinary concerns; but, equally, that does not immunize him to the Humean power of those ordinary affections (what makes something a sceptically unacceptable δόγμα depends not so much on subject matter as on attitude and commitment). And in this sense Sextus' scepticism about motion is urbane. He is free to follow the 'fourfold observance of life' that derives from 'the guidance of nature, the constraint of the passions, the tradition of laws and customs, and the teaching of the arts' (*PH* 1.24); and such a pursuit must involve accepting, non-dogmatically, that there is motion. Thus he can cultivate his garden or repaint his porch. He can lecture (undogmatically of course) in his Academy. And, provided that he does not dwell on any theoretical presuppositions of the activity, he can even take a stroll around his *peripatos*.

<sup>99</sup> For this account of what it means to follow something undogmatically, see Hankinson 1995: ch. XVII.

## *Appendix: Structural overview of M 10.37–168*

### 37–44: **Introduction** (cf. *PH* 3.64)

- 37: Aristotle recognizes six kinds of motion: change of place (*topikē metabasis*) and the various species of alteration (*metabolē*).
- 38: Most say that motion takes two forms: *metablētikē*, *metabatikē*.
- 39: *Metablētikē* is that in which subject does not change identity, just its properties.
- 40: Change (*metabolē*) subsumes the other four categories (generation, destruction, increase, decrease), unless increase is thought of as spatial.
- 41: *Metabatikē* is change of place either wholly or partially. Partial changes: clenching of the fist, rotation of spheres.
- 42: Epicurus: all change is fundamentally spatial, involving movement of atoms;
- 43: sweet things become bitter, hard things soft, by atomic rearrangement.
- 44: Thus we concentrate on spatial motion – if this goes, so will the rest.

### 45–9: **Three attitudes to motion** (cf. *PH* 3.65)

- 45: Three possible attitudes to motion: (a) it exists; (b) it does not; (c) it no more does than does not; (a) is supported by *bios*, and most physicists;
- 46: (b) is held by the Eleatics ('stationers');
- 47: nothing moves, because of infinite divisibility;
- 48: Diodorus too rejects present motion, although he says things can have moved;
- 49: (c) held by sceptics.

### 50–65: **Conceptual objections**

- 50: Motion is defined as 'transition from place to place'.
- 51: But this definition fails to account for motion in place;
- 52: perhaps motion is 'transition from place to place either of the whole body or of parts of it' [cf. *SVF* 2.492];
- 53: but this not universally true: example of compasses, whose movement involves both disjuncts (in respect of different parts);
- 54: the same is true in the case of doors;

- 55: neither of these cases is covered by the definition; nor is that in which something moves, but changes place neither as a whole nor by parts;
- 56: consider a man on a ship carrying rod aft at same speed as ship;
- 57: the rod moves, but equally stays in place;
- 58: further difficulties: consider a revolving *minimal* body: it cannot move either as a whole or in virtue of its parts.
- 59: The same is true in the case of a minimal axis.
- 60: These objections do not apply to continuum theorists;
- 61: although they do to atomists. Even so, arguments for and against are equipollent.
- 62: It is evident that there is motion, although some say that it is not evident to the senses as such, but rather to the intellect it goes to work on sense-material;
- 63: for sense: different sensory affections produced by motion and rest;
- 64: for intellect through sense: our concept of motion comes about by way of 'co-recollection' (*summnēmoneusis*) (cf. *M* 7.279; 353–6; 10.176; *PH* 3.108); i.e. we need to *compare* present and past, which involves non-perceptual memory.
- 65: Motion involves departure from place, but places are not perceptibles, so motion is not perceptible.

66–9: **Existence of motion obviously attested by experience (cf. *PH* 3.66)**

- 66: Evidence (*enargeia*) is still in favour of the view that things move.
- 67: Otherwise, how can the sun rise and set, and seasons change?
- 68: How do ships get from one place to another? And how does the sceptic leave home and return to it? Diogenes and walking refutation (cf. *PH* 2.244; 3.66; Galen, *CP* 9.115–16);
- 69: these and similar considerations are enough to establish existence of motion; we now turn to arguments against, in order to establish equipollent *diaphōnia*.

70–84: **General considerations: whatever moves is moved either (a) by something else or (b) by itself. But neither is possible (cf. *PH* 3.67–9)**

- 70: If (a), either (i) the mover will move with it, or (ii) it will not – but neither (i) nor (ii) is possible.
- 71–6: *Not (a) either by (i) or (ii)*
  - 71–2: *Not (i)*
    - 71: If (i), every moved thing will be accompanied by its mover;
    - 72: but then if one thing moves so will everything else, which is absurd.
  - 73–6: *Not (ii)*
    - 73: If (ii), the mover must somehow dispose the moving thing; but this can be done only by addition, subtraction, or change;

- 74: but these have already been controverted (*M* 9.277–329);
- 75: and atoms clearly cannot move, since they are incapable of addition and subtraction and change.
- 76: Whatever moves something must either (1) itself be in motion or (2) be motionless; not (1), or else there is infinite regress; but not (2), since the mover is active, and what is active moves.

77–84: *Not (b)*

- 77: If it self-moves, it will have a natural tendency in all directions or one only;
- 78: not in all directions, since then would not move, by equipoise;
- 79: if it moves in one direction, everything will move that way; but if partly moveable in each direction, then there will be no combination (*sunkrima*) between bodies:
- 80: for if they move outwards, the *kosmos* will be dissolved;
- 81: but if they are forced (*sunōthoumena*) to the centre from the extremities, they will move either (i) on the same lines (*sc.* as the rising bodies) or (ii) on different ones; if (i), they will collide, and either (1) come to rest if they are of the same force (although it is absurd to say that natural motion can cause rest);
- 82: or (2) if they are of unequal force, then they will move in the direction of that which predominates; but if (ii), then they will not combine. But this is absurd – so not-(b).
- 83: The self mover must either (i) push or (ii) pull itself, or (iii) press up or (iv) press down;
- 84: but then it must either be behind, in front of, below, or above itself, all of which are absurd; so not-b. So neither (a) nor (b); hence there is no motion.

85–120: **Diodorus Cronus**

85–90: *Exposition of Diodorus' argument*

- 85: A thing cannot be in motion (because of indivisibility), but it can have been in motion.
- 86: An indivisible body must be in an indivisible place; it cannot move either there, or where it is not – so it cannot move (*cf.* *PH* 2.242; 245; 3.71); but it *has moved*, since at *t*<sub>1</sub> it is at *p*<sub>1</sub>, and at *p*<sub>2</sub> at *t*<sub>2</sub>. But this is absurd (*cf.* 91–2).
- 87: Dilemmatic argument: if something moves, it moves either (a) where it is, or (b) where it is not. But not-(a), and not-(b) – so nothing moves.
- 88: (a) and (b) are the only conceivable possibilities; but (a) is impossible, since it fully occupies (a) and hence cannot move within it.

89: Equally, (b) is impossible: it can neither affect nor be affected anywhere where it is not.

90: QED. But there are several objections.

91–6: *Objections to Diodorus' argument*

91–2: (1) Past-tensed statements cannot be true if the associated present-tense statements are false; the past is a limit of the present, and if there is a limit there is a thing limited.

93: (2) Things can move in the place where they are: revolving things (cf. 51, 103; *PH* 3.72–75).

94: (3) The argument is misconceived, since it assumes that one or other of (a) and (b) must be true; but the conception of motion involves both places, and it moves *through* them, not in them.

95: (4) There are two senses of 'place', broad and narrow; objects can move in their broad places, but not in their narrow ones.

96: (5) Diodorus' argument in non-concludent, since it starts with a disjunction, yet rejects both disjuncts.

97–III: *Diodorus' replies, and counters to them*

97: Reply to (1): if two men married at different times, it is true to say that they have both married, but never true to say that they are both marrying;

98: similarly with 'Helen had three husbands'.

99: Counter to reply. 'These men married' means either 'they married at the same time' (in which case it is false), or it is a conjunction of two separate propositions '*a* married' and '*b* married'; and of these the presents are true;

100: so (1) holds.

101: But Diodorus adduces another example: a ball is thrown against a roof. Before it hits, 'the ball touches the roof' is false; but after the impact 'the ball has touched the roof' is true. So the preterite can be true when the present is not.

102: But: the preterite is not true until the present has been true; and so (1) holds.

103: Reply to (2): even in the case of things which move in place as a whole, their parts change position (cf. 52);

104: and so (2) provides no counter-example to the idea that all locomotion must be described in terms of things changing their places.

105: Reply to (3): the fact that the *concept* of motion involves two places does not show that the concept is coherent or that anything in fact moves.

106: And when does the moving object move from the one place to the other? Not while it is in the first (since that is where it is);

- 107: nor while in the second, since it then will *have* moved.
- 108: Reply to (4): ‘broad’ place no help, since it presupposes narrow place;
- 109: broad place contains narrow place, as latter contains body; so body must move in the latter in order to move in the former.
- 110: Moreover, Diodorus’ argument depends on narrow place.
- 111: Reply to (5): the disjunction is not asserted, but is rather the consequent of a conditional; when the disjunction is falsified, so is the conditional’s antecedent.

112–118: *Further arguments of Diodorus, and response to them*

- 112: Diodorus’ further arguments ‘not as weighty’; a moving object is in a place; the place does not move; so the object does not move.
- 113: Movement is twofold: (a) in respect of ‘the major portion’; (b) absolute. In (a) most but not all parts are in motion.
- 114: But if a body is to move *qua* (a), it must first move *qua* (b) (just as any collection must be mostly complete before it is fully complete). Absolute motion is the limiting case of majority motion.
- 115: But there is no motion *qua* (b); so there is none *qua* (a). Consider a tripartite body, two parts of which are in motion;
- 116: add a further motionless part; then it will still move, since the three moving parts will be stronger than the one added. But if a four-part body moves, so will a five-part;
- 117: and equally with a sixth part added; and so on up to 10,000. But this is absurd, since a body cannot be moving with its major part if 9,998 parts are not moving and only two are.
- 118: But this is sophistry: it no longer ‘moves in respect of the major part’ when the fourth body is added.

119–120: **No motion possible in the present**

- 119: If a thing moves, it moves in the present; and if in the present, in an indivisible time; for if present is divided, some part will be past and some future.
- 120: But if it moves in an indivisible time, it must move in an indivisible place – but then it cannot move (cf. 45, 85, 143).

121–122: **Arguments concerning the divisibility of time, space and body**

- 121–2: *General characterization of options: space, time and body are either all infinitely divisible, or some are, or none are – but in no case is motion possible*
- 121: Motion involves body, place and time;
- 122: all, some, or none of them may be infinitely divisible.



123–41: *Arguments against those who suppose that all three are infinitely divisible*

- 123: These people hold that the moving body covers the whole of the divisible interval all at once, and not seriatim; but this is absurd (cf. *PH* 3.77–8).
- 124: It is obvious that a man running a stade must first run the first half, and then the second.
- 125: Equally, he must cover the first half of the first half first; and his shadow will fall over successive parts of it.
- 126: And if he drags a painted hand along a wall, he will paint the wall serially; and the same goes for intelligible divisions.
- 127: Take a cubit, divided in half, and then into hands; and make the divisions resistant; if the mover covers the whole distance in an instant, then it will be resisted at the same time by distinct resistors;
- 128: but then it will both have moved and not moved the whole distance.
- 129: Suppose two bodies moving in opposite directions across a cubit at equal speeds; they will collide in the middle, and either (i) stop or (ii) rebound
- 130: If (i), then their traverse is interrupted, and they did not cover the whole thing in an instant; but if (ii), the times of the half-traverses are distinct.
- 131: Nor do two bodies moving with equal speeds cover the same distance in the same time.
- 132: Send two bodies over a cubit at the same speed, with one cubit divided; one will travel half the distance of the other in the same time.
- 133: *Ex hypothesi* they were moving at the same speed, and yet covered unequal distances; which is incoherent.
- 134: If x moves further than y in the same time, x is faster than y,
- 135: *contra hypothesem*: what moves in the same time will be both faster and slower, if it does not cover parts of the distance in parts of the time;
- 136: in so far as it covers the whole it will be faster; but in so far as it covers the part it will be slower.
- 137: Consider a finger-space divided by a solid resistor: if the body covers the whole and the parts of the distance in the same time, it must be going in two directions at once.
- 138: If it covers both the whole finger and the part in the same time, and the finger is made up of two partial distances, it will go forward and back in the same time.
- 139: Thus instantaneous distance-covering is incoherent; but so too is the idea that a mover covers a divisible distance gradually; for if magnitudes are infinitely divisible, there will be no first movement.

- 140: To cover a cubit, the mover must first cover half of it; and before that the first half of that; etc.
- 141: So there is never a first traverse, since every magnitude is made up of parts.
- 142–54: *Arguments against those (Epicureans) who suppose that all three are quantized*
- 142: The Epicureans, who believe in indivisibles, are even worse off;
- 143: firstly for Diodoran reasons: the atomic body in the first atomic place cannot move in that place, nor yet in any place where it is not (cf. 86–90).
- 144: Consider also a row of nine indivisible spaces, and have two indivisibles move from each end at the same speed.
- 145: They will thus each cover four spaces in the same time. Arriving at the middle space, either (a) they will stop, or (b) one will cross it and the other not, or (c) they will meet in the middle of it.
- 146: There is no reason why (a) (what is to stop them?); nor (b) (they are travelling at the same speed);
- 147: hence (c): but then the space is not indivisible.
- 148: But if places and bodies are both divisible, so is time: otherwise a body will cross the whole space and part of it in the same time.
- 149: suppose a calibrated ruler revolves about one of its ends: different-sized circles, corresponding to the calibrations, will be described in the same time.
- 150: Suppose the time of revolution is atomic: how can different-sized circles have been drawn?
- 151: Indivisible times cannot differ in respect of magnitude, or they will not be indivisible.
- 152: Nor can different parts of the ruler move at different speeds:
- 153: if some parts move more quickly, the ruler should have been torn apart (if magnitudes are indivisible).
- 154: If body, place and time are all indivisible, then everything will move with the same speed; which is absurd.
- 155–67: *Arguments against those (allegedly Strato) who think that some are infinitely divisible while others are not*
- 155: Strato supposed time to be granular, but space and body continuous.
- 156: Assume an interval of four fingers, and that a body covers it in two instants. Now subtract one finger:
- 157: if the body covers four fingers in two instants, then it will cover three in one and a half; so the indivisible time is divisible.
- 158: Or add a finger: the same problems result.
- 159: And: if the moving object completes a divisible distance in an instant, something will stop without cause, which is impossible.

- 160: Let a heavy object fall 10 cubits in a minimal time; then add a cubit, and drop it again.
- 161: When it reaches the tenth it will either stop or pass through the eleventh. Surely it will not stop in midair;
- 162: but if it keeps moving, it will pass through the eleventh in  $1/10$  of the indivisible time; so the indivisible time is not indivisible.
- 163: And: if it completes the whole divisible distance in an indivisible time, it will be everywhere at once;
- 164: so it does not cover divisible distance in indivisible time, otherwise it will be both hot and cold, light and dark at the same time; for suppose distance of two cubits, one chilled and the other heated;
- 165: if it covers both in indivisible time, it will at the same time be hot and cold;
- 166: and light and dark, absurdly. And it will cover any distance in the same time;
- 167: take an interval of four fingers, divided into eight parts, A, B, C, etc. It will cover BC in the same time as AB; but then it will cover CD in the same time, and so on ad infinitum.

168: **Conclusion**

If there is motion neither if things are all continuous, nor if they are all quantized, nor if some are continuous and some not, then there is no motion; so we suspend judgement because of the equipollence of the evidence of the senses on the one hand and of argument on the other.

## CHAPTER 7

### *Time: M 10.169–247*

*Susanne Bobzien*

#### **Introduction**

For the most part, this chapter is not a philosophical one in any strict sense. Rather, it focuses on the numerous exegetical puzzles in Sextus Empiricus' two main passages on time (*M* 10.169–247 and *PH* 3.136–50), which, once sorted out, help to explain how Sextus works and which views he examines. Thus the chapter provides an improved basis from which to put more specifically philosophical questions to the text; this chapter has two sections, which can, by and large, be read independently. Each is about a topic which, to my knowledge, has so far not been treated in detail. The first section is concerned with the argument structures of the two main passages on time in Sextus, pointing out various irregularities in the overall argument in both passages, as well as parallels and differences, and asking which kinds of scepticism and sceptical methods we find in the various parts of each passage. The second section focuses on the doxographical accounts of time in the two passages: what they are, how they compare with surviving parallels, to which philosophers we can attribute those accounts for which Sextus himself provides either no possible ascription, or more than one, and how Sextus treats the doxographical material. This discussion is inspired by the contributions Michael Frede offered on this topic the day before his untimely death.<sup>1</sup>

#### **Comparison between *M* 10.169–247 and *PH* 3.136–50: what scepticism?**

The long passage on time *M* 10.169–247 is not the only place where Sextus discusses philosophical issues regarding time. We have the arguments about

<sup>1</sup> This second section replaces another, which was to discuss the philosophical positions on time of Strato, Aenesidemus and the Epicurean Demetrius, as presented in Sextus, and which will be the subject of a future paper.

present- and past-tense propositions by Diodorus Cronus in *M* 10.97–8, remarks on Strato's theory of time at *M* 10.155, a short version of Sextus' direct arguments against time at *M* 6.62–7, and, most importantly, the chapter on time in *PH* 3.136–50. This chapter provides a parallel to our passage, and the best way to grasp the overarching structure of our passage and the sceptical tenets and methods used in it is by comparing the two passages of *M* and *PH*. (For a structural overview of both passages see [Appendices I and II](#).)

### *Relation between the two passages*

The passages on time in *M* and *PH* are closely related. The *PH* passage is, as expected, much shorter; but there is ample overlap. Yet, neither is *PH* simply a summary of *M*, nor is *M* simply an expansion of *PH*. The overall structures of *PH* and *M* are different in a way that rules out complete direct dependence of one text on the other: *M* has a tripartite structure with doxographical material presented and refuted view by view at the beginning and end. Sandwiched in between, it presents a barrage of direct arguments, that is, arguments dealing with the subject time, directly, not by way of any philosopher's position on what time is or what its substance is.<sup>2</sup> In *PH* the doxographical report comes first, all in one chunk, apparently taken from one source; the dogmatic views are then refuted summarily, in one complex argument, not individually; and the direct arguments conclude the passage. In addition to these considerable structural differences, *PH* is not a short version of *M*, since it contains information and details absent from *M*. These are most notably (i) various elements of post-Aenesideman scepticism and implicit references to *PH* 2; (ii) a more explicit presentation of the overall sceptical argument; and (iii) some interesting remarks about the flux of time. *M* is not simply an expansion of *PH*, since (i) it lacks those elements of post-Aenesideman argumentation and vocabulary, and (ii) it seems to draw upon additional independent sources that were not used by Sextus for *PH*.

### *M* 10.169–247 and sceptical method

Sextus seems to have constructed this section from two different kinds of sceptical building blocks. The discussions of the dogmatic views in parts

<sup>2</sup> There is a comprehensive study of Sextus' direct arguments against time based on the tripartition into past, present and future at *M* 10.197–202 by James Warren (2003), which correctly concludes that these arguments are both weak and mostly not original to Sextus. The same can be said about most of the other direct arguments against time in *M* 10 and *PH* 3. The present chapter will not discuss their philosophical content and merit.

I and III take each of the views presented and show that it leads to an impasse (deadlock, difficulty, being at a loss: ἀπορία). By contrast, in part II each and every one of the direct arguments is an argument to the conclusion that time does not exist (or that time ‘is not’), and thus apparently to a positive stance rather than suspension of judgment. In three places Sextus presents his goal for, or results from, parts I and III as if their purpose was to undermine the existence of time and to show its non-existence (*M* 10.188, 215 and 229, details below). However, this was not how they were originally used for sceptical purposes. I first consider the sceptical method used in parts I and III, second, how Sextus interprets the goal and results from these parts, third the method used in part II, and finally I add some remarks about the whole passage.

The doxographical material presented in parts I and III follows a common pattern. Part I presents the concepts (notions, definitions, accounts: λόγος 170, ἐννοια 229, ἐπίνοια 188, etc.) of time put forward by various philosophers and philosophical schools. Part III claims to present what the philosophers and schools considered to be the substance (essence, nature: οὐσία) of time.<sup>3</sup>

The entire passage starts with an indication that the accounts (λόγοι, 170) of time of certain natural philosophers may be *aporetic*, that is, leading to an impasse, and the first section indeed attempts to show that each account (all taken from a doxographical source) leads to inconsistency and hence impasse. Sextus never explicitly says that he aims at presenting inconsistencies (although this is clearly what he does), nor does he say in part I at the end of any individual argument that we reach an impasse. However, he does mention this as the overall result of part I at *M* 10.188.

Part III (the last section), on the substance of time, is introduced by the sentence: ‘it will be possible to reach an impasse (ἀπορεῖν) regarding this (τοῦτο)<sup>4</sup> also from the substance <of time>, as an impasse was reached previously (προσπορεύω)<sup>5</sup> from the concept of time’ (*M* 10.215). This confirms that Sextus himself understands part I as resulting in an impasse. As in part I, the procedure in part III is to show that the various accounts, here of the substance of time, lead to inconsistencies. However, this time all the views are first presented one after the other and then in a second step refuted – mostly – one by one. Impasse terminology is used both at the

<sup>3</sup> Cf. for this division e.g. the doxographical material in Stobaeus, *Ecl.* 1.5 (fate, 322–3), 1.18 (time, *DG* 318), 1.49 (soul, *DG* 386–7) and Ps.-Plutarch, *Epit.* 40–1 (necessity, *DG* 321).

<sup>4</sup> I will come to the question of the referent of τοῦτο shortly.

<sup>5</sup> For this use of προσπορεύω see also *M* 10.229.

beginning and at the end of the passage, as well as where the refutation starts (215, 229, 247). At the beginning of the refutation (*M* 10.229) Sextus states that, given the disagreement in views (divergence, difference: διάστασις) concerning the substance of time, the foregoing production of impasses allows us to infer that we can learn nothing firm from this disagreement.<sup>6</sup> At the end of the refutation Sextus begins the concluding sentence thus: 'having reached an impasse regarding time also from its substance ...' (*M* 10.247). This indicates that he believes he has achieved his goal.

*De facto*, the method used in parts I and III on time in *M* 10 is this: all accounts of time and its substance are individually shown to lead to inconsistency. Hence, overall, we reach an impasse with regard to time. However, there is a notable oddity in the way in which Sextus himself presents and interprets the results reached in parts I and III. We would expect these parts to lead to suspension of judgment (ἐποχή) as a direct consequence of the disagreement in philosophical views on time and the resulting impasse regarding any positive position about time. Instead we are given an attempt by Sextus to sell parts I and III to the reader as supporting the stance that time does not exist, which is a positive stance about non-existence. This becomes clear in at least three places: at the end of part I we have the following transition to part II: 'Now, from the notion (ἐπίνοια) <of time> the existence (reality: ὑπαρξις)<sup>7</sup> of time has reached an impasse in this way. But one can also establish the thesis<sup>8</sup> by means of direct (προηγούμενων) argument' (*M* 10.188–9). Here it is suddenly the existence of time about which an impasse is said to have been reached, despite the fact that the existence was never mentioned before in the relevant section on time. Similarly, at *M* 10.229, at the beginning of the refutations of the views on the substance of time, Sextus describes what he did in part I as: 'we inferred from the conception (ἐννοια) of time that time is nothing'. In contrast to what was actually argued in part I, Sextus here suggests that what was inferred in those arguments was that 'time is nothing', a phrase he seems to use interchangeably with 'time does not exist'. Finally, at the transition from part II to part III (*M* 10.215), where we had 'it will be

<sup>6</sup> The phrase βεβαίως μαθεῖν seems to pick up the Pyrrhonist terminology of διαβεβαιουῖσθαι, introduced in *PH* 1.15, used e.g. at *PH* 1.200, and also in the context of time at *PH* 3.139.

<sup>7</sup> Sextus seems not to discriminate between forms of ὑπαρξις and of εἶναι: cf. his equation of ἀνυπάρκτων and οὐδέ ἐστὶ τι at end of *PH* 3.146.

<sup>8</sup> Richard Bett prefers 'deliver on the task at hand' for τὸ προκείμενον κατασκευάζειν. This makes Sextus' statement more non-committal. I have chosen 'establish the thesis', since the Greek phrase is standard logical terminology at Sextus' time (deriving from Aristotle) for establishing, as opposed to refuting (ἀνασκευάζειν), a thesis.

possible to reach an impasse regarding this (τοῦτο) also from the substance <of time>, as previously an impasse was reached from the concept of time', the referent of 'this' (τοῦτο) is crucial. As the text stands, 'this' can refer only to 'time does not exist' (literally 'time is not') from the end of part II (*M* 10.214), just three words away. So here both part I and part III are intimated to deal with the issue of the existence of time and to reach an impasse with regard to it. Thus we have a clear discrepancy between the content of parts I and III and the description or interpretation of that content by whoever put them together with part II (probably Sextus). Note that the three passages are each at the transition from one topic to another, and therefore may easily be the editorial work of someone other than the original author of parts I and III.

In any event, the attempted argument from the refutations of individual positions on time and its substance in parts I and III to the non-existence of time is unsatisfactory in two respects: first, there is in fact a direct sceptical route from an impasse or from ἰσοσθένεια to suspension of judgment and peace of mind (ἀταραξία).<sup>9</sup> The arguments against the dogmatists' views, individually or summarily, will lead a sceptic to suspend judgment about what time and its substance are and thus prevent her from taking any stand on time at all. This does not entail explicit suspension of judgment regarding the existence of time: as long as the sceptic is not bothered (has no ταραχή) about the question whether time exists, she is in no need of a specific remedy for this topic. Arguably it may lead to such suspension as soon as the issue is considered. But even in the weakest case, the aggregation of arguments does not entail an acceptance of, or even a leaning towards, the non-existence of time, just as it does not entail an acceptance of, or even a leaning towards, the existence of time.

Second, Sextus' argument is neither valid nor sound. By showing that a certain number of views about time lead to inconsistencies, he has not shown that time does not exist. To ensure validity, Sextus would have to add an argument that demonstrates that the views discussed form an exhaustive disjunction, for example<sup>10</sup>

Premise 1: If time exists, time must be either this or that or that . . .

Premise 2: But time is neither this nor that nor that . . .

Conclusion: Hence time does not exist.

<sup>9</sup> *PH* 1.8, 10, 26–9, 31–2.

<sup>10</sup> In the *PH* passage, the accounts of the substance of time form an exhaustive disjunction, and Sextus notes as much, but in the *M* 10 passage this is not so.



This is the kind of argument structure Sextus actually uses in part II of *M* 10. But even if, with a generous portion of charity, we accept that Sextus took such an implicit argument to be granted by his readers, and that validity would be thus preserved, the argument is not sound. For we have no reason to assume that its first premise is true, or more precisely, that its consequent expresses an exhaustive disjunction. Accordingly, Sextus' attempt in *M* 10.189, 215 and 229 to turn the arguments from parts I and III into arguments against the existence of time is not successful.

Next part II: it contains the direct (προηγούμενος) arguments concerning the existence of time. Προηγούμενος (which is used in the same way at *M* 9.418)<sup>11</sup> has the meaning of what comes first and is principal, and hence of what is directly concerned with the issue. Most probably, Sextus uses the expression to indicate that the arguments discuss the main properties of time directly, as opposed to by means of discussing the views of specific philosophers or philosophical schools.<sup>12</sup> This option is supported by the fact that *all* of parts I and III but *none* of part II are concerned with the positions of specific philosophers or philosophical schools. Alternatively, the function of 'direct' here may be to distinguish the arguments from those arguments that are not directly about the *existence* or *non-existence* of time but support the non-existence of time in some less direct manner. This option would square with Sextus' otherwise unexplained presentation of parts I and III as being in support of the non-existence of time. It would not, of course, provide any additional reason why they are considered to support this non-existence.

The direct arguments in part II all argue to the conclusion that time does not exist. The conclusion is presented in several variations, but Sextus' treatment of these puts them all on a par.<sup>13</sup> Most of the arguments follow the same general pattern. They use the dilemmatic argument scheme

If time exists, it is either F or not F.

But time is neither F nor not F.

Therefore time does not exist.<sup>14</sup>

<sup>11</sup> It is used somewhat similarly at *M* 10.390 and 10.326.

<sup>12</sup> In Sextus' discussion of place, we find a similar distinction between arguments dealing with particular concepts of place and 'more general' (κοινότερος) arguments, i.e. arguments independent of such particular concepts (*PH* 3.134). On this point see also Keimpe Algra's contribution, in this volume.

<sup>13</sup> The conclusions of the direct arguments in *M* 10.189–214 are: ἀνύπαρκτος ἄρα ἐστὶν ὁ χρόνος (192), μηδὲν εἶναι τὸν χρόνον (196), οὐδὲ . . . εἶναι τινα χρόνον (202), οὐδὲν οὖν ἐστὶ χρόνος (205), μηδὲν ὑπάρχειν τὸν χρόνον (211), μὴ εἶναι χρόνον (214).

<sup>14</sup> This is also the case for the 'more general' (κοινότερος) arguments in Sextus' passage on place, see again Algra in this volume.

As is standard in ancient logic, the disjunction would have been taken to be both exhaustive and exclusive.<sup>15</sup> The argument scheme is thus valid. For *F* we get ‘limited’, ‘divisible’, ‘perishable’ and ‘generable’; the last two properties are discussed in combination. In addition there is a short argument from the non-existence of the parts of time to the non-existence of time as a whole, and an argument, or rather group of arguments, from the tripartition of time. (The whole passage is not well organized. The parallel in *PH* 3 has a clearer and more concise structure.)

Given the slant that Sextus puts on the arguments from parts I and III, the resulting overall picture of the *M* 10 passage on time is that we have a large number of arguments and argument clusters in support of the non-existence of time. What we are to do with this multiply obtained result we are not told. There is no direct route from this result to suspension of judgment. Rather, one should think, the reader would become inclined to adopt the belief that time does not exist. That would be not very Pyrrhonian.

Warren<sup>16</sup> suggests that the direct arguments in the middle section are ‘against the common non-philosophical opinion that there is time’ (314) and that a ‘suspension of opinion [is] generated in this section’ which is ‘a suspension of belief between the two very general opinions that “there is time” and “there is not time”’ (315) and that ‘[h]ere as often elsewhere, Sextus feels no need to linger in offering arguments for a common or universally held belief’ (i.e. that time exists). Yet, this is not so much a text-based observation as a conjecture. In the section at issue, no suspension of opinion is generated. Some of Sextus’ readers may suspend judgment regarding the question whether time exists, others may not, and they may do so for different reasons.<sup>17</sup> Furthermore, there is no indication that Sextus carefully orchestrated the passage, deliberately leaving out arguments for universally held beliefs and anticipating his readers’ suspension of judgment on the question of whether time exists.

There are alternative interpretations that may harmonize better with the text. Thus, in the spirit of Warren’s suggestion, the apparent negative dogmatism in the passage could be explained (away) by the role the discussion of time is indicated to play in the larger context of *M* 10, more precisely by its relation to motion. At *M* 10.169, which, harking back to *M* 10.121, provides the transition from the passage on motion to the passage on time, time is introduced as a component of motion, and hence as a

<sup>15</sup> See e.g. Bobzien 1999: 109–10.      <sup>16</sup> In Warren 2003.

<sup>17</sup> For instance, I am not inclined to suspend judgment, since many of Sextus’ arguments are poor, and none are conclusive.

precondition for the existence of motion. In the preceding sentence at *M* 10.168, suspension of judgment is declared to follow the equipollence resulting from (i) the *self-evidence* (ἐνάργεια) in support of the existence of motion and (ii) the *arguments* that contradict this self-evidence.<sup>18</sup> The whole passage on time can hence be understood as being part of a very long and complex argument against the existence of motion, undermining first the concepts, then the existence, and finally the substance of time.<sup>19</sup> This interpretation would have a textual basis. Another possibility is that the lack of a clear structure and of any mention of, or allusion to, the thesis that time exists in the whole passage on time indicates that Sextus simply provides an inventory of arguments taken from several sources which can be employed for Pyrrhonist purposes. Either way, in the passage Sextus seems not to be supplying the reader with a fully worked-out example of the sceptical programme or a 'case study in the Pyrrhonist procedure outlined first at *PH* 1.8'.<sup>20</sup>

### *PH 3.136–50 and sceptical method*

For a 'case study in the Pyrrhonist procedure' we need to look to the *PH* 3 passage on time, although even there we have anything but a showpiece of Pyrrhonism. At *PH* 3.135, in the concluding sentence of the preceding section on place or space (τόπος), Sextus picks up on content and terminology of *PH* 3.66 and 3.81 (on motion),<sup>21</sup> and he juxtaposes self-evidence (ἐνάργεια) and argument (λόγος) regarding place and its existence: '... both the arguments . . . and the self-evidence put them <i.e. the sceptics> to shame. This is why we do not attach ourselves to either side, as far as the things said by the dogmatists are concerned, but suspend judgment with respect to place.' As all the arguments produced are against (the existence of) place, it is *implied* that the self-evidence is in favour of (the existence of) place and is as strong as the arguments taken together, thus leading to suspension of judgment. This contrast of self-evidence and argument is a commonplace

<sup>18</sup> 'and upon these <i.e. arguments about the divisibility of motion that lead to the conclusion that motion is nothing> follows suspension of judgment because of the equipollence of the self-evidence and the arguments contradictory to it' (*M* 10.168). For the sequence of equipollence and suspension of judgment see e.g. *PH* 1.10.

<sup>19</sup> One could go further and conjecture that the introduction of the arguments against number supports the arguments against time and hence indirectly the arguments against motion. This suggestion is compatible with the beginning and end of the section on numbers, if perhaps a little far-fetched.

<sup>20</sup> Pace Warren 2003: 314.

<sup>21</sup> Cf. *PH* 3.81: ἐπὶ τῇ ἀντιθέσει τῶν τε φαινόμενων καὶ τῶν λόγων, ἐπ' ἔχον περὶ τοῦ πότερον ἔστι κίνησις ἢ οὐκ ἔστιν, which picks up the contrast of argument and self-evidence from *PH* 3.66.

in Pyrrhonism (cf. e.g. *PH* 1.33, on ‘appearances’ (φαινόμενα) and ‘things thought’ (νοούμενα)).<sup>22</sup> To be fully understood, the beginning of the passage on time must be read in conjunction with the concluding remarks on place: ‘In the same way we are affected (πάσχομεν) also in the investigation (ζήτησις) regarding time; for, as far as the appearances (φαινόμενα) go, time seems to be something, but as far as what is said (λεγόμενα) about it goes, it appears to be non-existent’ (*PH* 3.136). This sentence is a carefully constructed example of Pyrrhonist writing, brimming with Pyrrhonist terminology and ‘doctrine’.<sup>23</sup> The use of ‘being affected’ (by suspension of judgment, that is) and the epistemic modal weakeners ‘to seem’ and ‘to appear’ display the proper concern of the sceptic never to accept either argument or self-evidence outright and in an active manner. ‘In the same way’ refers to *PH* 3.135, quoted above. ‘The appearances’ hence stands for what is self-evident; ‘what is said’, for the arguments. Parallel to the concluding sentence on place, and in line with what follows about time, the self-evident appearances suggest that time exists, whereas the arguments suggest that it does not. So, unlike in *M* 10, here we have the expected Pyrrhonist set-up: appearances and arguments lead to opposite results with respect to the existence of time. The arguments against the existence of time in *PH* 3 provide one of the two incompatible positions which, when taken jointly, are assumed to lead to suspension of judgment.

At this point we expect Sextus to continue by presenting a series of arguments against the existence of time. Yet, he does not – at least not immediately. We have to wait until *PH* 3.140–50. In between, we are given a list of five dogmatic accounts of what time is, and two of what its substance is, all taken from a doxographic source (*PH* 3.136–8)<sup>24</sup> and followed by a rather different sceptical argument (*PH* 3.138–40). Sextus does not employ the doxographical accounts to show that time does not exist. There is no parallel move to the unsuccessful manoeuvre from *M* 10. Rather, Sextus simply changes sceptic track. He introduces an exclusive disjunction: either all the dogmatic accounts are true, or all are false, or some are true, some false (*PH* 3.138). He then argues, first, that since the dogmatic views are mutually inconsistent, they cannot all be true; and second, that at least from the perspective of the dogmatists, they also cannot all be false – presumably, since each dogmatic philosopher thinks their view is true, this being what makes them dogmatic. Of course, the dogmatists

<sup>22</sup> See also the remarks on self-evidence in *PH* 3.266.

<sup>23</sup> For ‘investigation’ see e.g. *PH* 1.3; 1.7; for ‘affected’ see e.g. *PH* 1.22; 192 (πάθος).

<sup>24</sup> For a discussion of the doxographic accounts see below.

could all be wrong. Perhaps to cover this option, at *PH* 3.139 Sextus introduces the possibility that all accounts of the substance of time are false, both the account that it is corporeal and the one that it is incorporeal. He indicates that they form an exhaustive disjunction, and that granting falsehood to both would force one to grant the non-existence of time. The underlying – valid – argument scheme seems to be ‘If *x* exists, it is either *F* or not *F*. But it is neither *F* nor not *F*. Hence *x* does not exist.’<sup>25</sup> In *PH* 3 the falsehood of the two theses (that the substance of time is corporeal and that it is incorporeal) is introduced merely as an hypothesis, with no arguments backing up the falsehood of either. However, in *M* 10.229–47 we find such arguments, and, if we feel magnanimous, we may assume that Sextus takes it for granted that such arguments have been provided, if not in this place; or in any case that they could easily be provided.

Next we expect Sextus to move to the remaining option, that some views on time are true and some false. What we actually get is this: ‘Nor is it possible to apprehend which <positions> are true, which false ...’ (οὐτε τίνες μὲν εἰσιν ἀληθεῖς, τίνες δὲ ψευδεῖς δυνατόν καταλαβεῖν ..., *PH* 3.139). In formulation, this clause almost mirrors the introduction of Sextus’ tripartition: ‘Either all of these positions are true, or all of them are false, or some of them are true and other ones false’ (ἤτοι οὖν πᾶσαι αἱ στάσεις αὐταὶ εἰσιν ἀληθεῖς, ἢ πᾶσαι ψευδεῖς, ἢ τινὲς μὲν ἀληθεῖς, τίνες δὲ ψευδεῖς: *PH* 3.138). The referent of τινὲς in 139 can only be ‘views’ or ‘positions’ (στάσεις) from 138. In addition, the ‘nor’ (οὐτε) in 139 seems to complement the ‘neither’ and ‘nor’ (‘neither that they are all true ... nor that they are all false’, οὐτε δὲ πᾶσαι ἀληθεῖς ... οὐτε πᾶσαι ψευδεῖς ..., *PH* 3.138) with which Sextus introduced his treatment of the first two options. Thus there can be no doubt that the third option is now under discussion.

However, the issue is not entirely straightforward. In line with the presentation of the first two options (‘neither that they are all true ... nor that they are all false’, οὐτε δὲ πᾶσαι ἀληθεῖς ὑπάρχειν ... οὐτε πᾶσαι ψευδεῖς εἶναι ..., *PH* 3.138) and with the ‘nor’ (οὐτε) in *PH* 3.139, we would expect the following: ‘nor is it possible to apprehend that some <positions> are true, *some* false ...’ (οὐτε τινὰς μὲν εἶναι ἀληθεῖς, τινὰς δὲ ψευδεῖς δυνατόν καταλαβεῖν). But this would require the text to have the infinitive εἶναι instead of εἰσιν and, instead of the two τίνες, two τινὰς, taken as indefinite pronouns, and thus as enclitic. But the text has the finite verb with two τίνες as indirect interrogative pronouns. Still, neither

<sup>25</sup> The argument form is similar to the one used in most of the direct argument, both in *PH* 3 and in *M* 10.

the sentence as it stands nor an emendation along the lines mentioned<sup>26</sup> allows for a philosophically straightforward interpretation of the passage. If we want to avoid the conclusion that Sextus has simply abandoned the three-pronged argument he started at *PH* 3.138, our best shot is to assume that he presents a heavily abbreviated version of the third ‘prong’, for example by amalgamating two argument steps into one in a somewhat sloppy way. This would not be uncommon for Sextus, and in fact the whole passage on time exhibits a certain carelessness. In full, the third part of the whole argument might have run along the following lines: ‘neither can we apprehend <that some positions are true, some false; for we cannot apprehend> which positions are true, which false, because of the equipollent dispute and the impasse with regard to the criterion and proof’.

Before reconstructing Sextus’ overall argument (*PH* 3.136–40), let us zoom in on its third step (*PH* 3.139, οὐτε . . .) and conclusion (*PH* 3.140). Sextus does not reject the possibility that some positions on time are true, others false. He denies only that we can apprehend this. Non-apprehension is one of the standard professions of a Pyrrhonist (cf. *PH* 1.200–1). The reason given why we cannot apprehend that some views are true, some false – or which ones – is twofold: ‘because of the equipollent dispute (ἰσοσθενῆ διαφωνίαν) and <because of> the impasse with regard to the criterion and proof’ (*PH* 3.139). The idea of an equipollent dispute that leads to suspension of judgment and peace of mind is familiar from *PH* 1.8 and 1.10. But what does this equipollent dispute consist in here? In all likelihood, in the – presumed – fact that there are equally good arguments for, or against, all of the dogmatic theories of time.<sup>27</sup> No such arguments are presented in *PH* 3. However, we find in *M* 10.170–88 and 215–47 arguments *against* all the views reported in *PH* 3.136–8. Moreover, we can assume that the dogmatists themselves provided arguments or evidence in *favour* of their own views. Thus Sextus may rely on the existence of such arguments.<sup>28</sup> The second reason why apprehension is impossible is the impasse regarding criterion and proof, which are the two main epistemic methods used by the dogmatists. Sextus discussed these two methods at length in *PH* 2 and

<sup>26</sup> Modern translators generally leave the text as it is and do not comment on its difficulties, e.g. Annas & Barnes 1994; Bury 1933; Hossenfelder 1985.

<sup>27</sup> This is suggested by the τε after the διά together with the καὶ τὴν ἀπορίαν τῇν . . . in the sentence, which suggest that only the impasse concerns the criterion and proof. Alternatively, the equipollent dispute, too, could be about the criterion and proof.

<sup>28</sup> Alternatively, Sextus could be referring to the – presumed – equally strong support for and against the existence of time by self-evidence and arguments respectively. But the context does not support this option.

believes he demonstrated there that both methods are entirely unreliable, since his sceptical treatment led to an impasse for both.<sup>29</sup> As a consequence, any dogmatic position that is established by either a criterion or a proof is equally unreliable. The wholesale doubt cast on the epistemic methods thus *de facto* relieves the Pyrrhonist from having to produce any substantive arguments about individual dogmatic theories.

At the beginning of *PH* 3.140 Sextus presents a conclusion of the foregoing argument: 'Hence, for these reasons, there will be nothing we can state firmly (maintain strongly: διαβεβαιώσασθαι)<sup>30</sup> about time.' Which reasons is Sextus referring to, or, put differently, what are the premises from which he draws this conclusion? There are two (reasonable) possibilities: either the reasons are the two provided as justification for why the third option (i.e. that some dogmatic accounts are true, some false) is unsuccessful; then the conclusion covers the third option only. Or they are the total of reasons given for why all three options are unsuccessful; the conclusion then covers all of *PH* 3.136 (χρόνον γάρ ...) to 139. The text itself seems neutral regarding an answer. Philosophically, the second possibility is preferable. It has Sextus present a sustained argument and endows the text with a better structure. I briefly explicate this possibility. In outline, Sextus' argument would run like this:

Here are the dogmatic views on time (*PH* 3.136–8).

They are either (i) all true or (ii) all false, or (iii) some true, some false (138).

Against (i): they are not all true, since incompatible (138).

Against (ii): either they are not all false or time does not subsist (138–9).

Against (iii): we cannot apprehend that some are true, some false, since the support for (or against) any of them is of equal strength, and *a fortiori* the epistemic methods one may use are unreliable (139).

We are left with the options that either time does not subsist, or any dogmatic view about it, as far as we can tell, is as good (or rather as bad) as any other, or both.

Hence there is nothing we can state firmly about time (140).

Is this argument valid and sound? If we are lenient regarding the informality of the presentation, at least the appearance of validity can be conceded. Soundness needs to be granted only if we accept (a) that the dogmatic accounts presented form an exhaustive class regarding what can be non-derivatively stated about time, and (b) a number of Pyrrhonist assumptions. (a) is required both since otherwise there may be things that

<sup>29</sup> For the criterion see *PH* 2.14–79, for proof *PH* 2.144–92.

<sup>30</sup> For διαβεβαιόμηναι as Pyrrhonist term cf. *PH* 1.15, 200.

can be stated firmly about time that are logically independent of the accounts given, and for the argument regarding the non-subsistence of time. In the Pyrrhonist spirit, we can say that the argument holds only as long as no further logically independent tenets about time are brought to our attention,<sup>31</sup> and that, with this provision, (a) can be conceded. As to (b), the Pyrrhonist assumptions include that the arguments regarding the dogmatic positions on time are all of equal strength (or weakness) and that the arguments from *PH* 2 about the criterion and proof were successful. Hence anyone who accepts the Pyrrhonist method as it has been presented in *PH* 1 and 2 should be bound by the conclusion of the argument. An unstated consequence of one's reaching the conclusion is – presumably – that one suspends judgment about time. Sextus' argument is a self-contained sceptical argument against time, based on elements of *PH* 1 and *PH* 2. Thus, at the beginning of *PH* 3.140, Sextus seems to have accomplished (at least temporarily) the general sceptical goal about the issue of time. What is more, he has done so without presenting a single substantial argument about time. (By substantial arguments I here mean arguments that deal specifically with time.)

Even so, we did not find what we anticipated after the introductory sentence on time in *PH* 3.136 (see above). That sentence, in conjunction with the concluding remarks on place, made us anticipate arguments that support the non-existence of time; arguments that would only in combination with the self-evidence of the existence of time lead us to suspend judgment; and that would lead us to suspend judgment about the existence of time. Instead, as in *M* 10, we were given an argument that is not explicitly about the existence of time and that leads to suspension of judgment directly, though the argumentation itself is noticeably different from that in *M* 10. The non-existence (or non-subsistence) of time is thematic only in the sub-part of the argument that introduces the possibility that both the corporeality and the incorporeality thesis turn out to be false.<sup>32</sup> Thus the non-existence of time provides only one disjunct of a disjunction that leads to suspension of judgment, and the other disjunct is not that time exists, but the result that all dogmatic arguments about time are of equal strength.

<sup>31</sup> Cf. *PH* 1.202–3, implied at *PH* 1.193, 199, 200, 201, 203.

<sup>32</sup> This sub-argument oddly interrupts the flow of the argumentation in 136–9; it is unnecessary if we accept the foregoing sceptic *ad hominem* argument that rules out that *all* stances on time are false; it could be a later insertion into the argument by Sextus. There is no textual evidence for this, so I just mention it here.



Arguments that are explicitly against the existence of time are supplied only in *PH* 3.140–50. This notwithstanding, Sextus himself seems to continue as if he has argued against the existence of time all along. He introduces the first argument against the existence of time with ‘furthermore’ (εἰτα), which is often used to introduce an additional argument on a point. The argument itself is a conditional argument for the doing-away-with of time: ‘Furthermore, since it seems that time cannot subsist without motion or rest, if motion is done away with (ἀναιρεῖται), and similarly rest, time is done away with.’ It is based on the condition that motion and rest have been done away with already. We can remove the conditional element in the argument, since Sextus indeed ‘did away with’ motion and rest earlier in book 3.<sup>33</sup> The simplified argument then becomes:

If time subsists, then motion <subsists> and/or rest <subsists>.<sup>34</sup>

But motion is done away with and rest is done away with.

Hence time is done away with.

The argument form is valid. The argument is carefully presented with a sceptical reserve (‘it seems’: δοκεῖ) in the first premise. The term translated by ‘done away with’ (ἀναιρεῖσθαι) and its role in scepticism has been subject to some debate.<sup>35</sup> In the present context, ‘is done away with’ is contrasted with ‘subsists’. This allows two readings of the second premise and conclusion. Either ‘is done away with’ is roughly synonymous with the object-level predicate ‘is made non-existent’, and ‘*x* is done away with’ is short for ‘*x* is done away with by argument’; or ‘is done away with’ is roughly synonymous with the meta-language predicate ‘is refuted’ or ‘is denied’, and ‘*x* is done away with’ is short for ‘the existence of *x* is refuted’. Either way, the argument seems to contest the existence (or subsistence) of time and is thus in line with the sceptical endeavour introduced at the beginning of *PH* 3.136. The argument is also implicitly a substantial argument regarding time, since in it a relation of dependency between time, motion and rest is assumed. The soundness of the argument depends on whether this relation holds and whether Sextus was successful in doing away with motion and rest. Sextus intimates that he believes he was, by starting the next sentence with ‘nonetheless’ (οὐδὲν δὲ ἥττον):

<sup>33</sup> Cf. *PH* 3.81 for motion, *PH* 3.115–17 for rest.

<sup>34</sup> I am not sure whether the text implies the logical connective ‘and’ or ‘or’ here. The argument is valid either way.

<sup>35</sup> See e.g. Bett; in this volume, and Algra, also in this volume.

‘Nonetheless, some have said the following things against time’ (*PH* 3.140). The sentence introduces a sheaf of direct arguments against the existence of time which parallel those from *M* 10 and which conclude Sextus’ discussion of time in *PH*. The formulation ‘some have said’ shows that he makes no secret of the fact that these arguments are not his own, but lifted from some source. The source is probably sceptic, but not necessarily Pyrrhonist. It could have been a sceptic philosopher whose goal was simply negatively dogmatic, that is, to show that time does not exist. In any case, the similarity between these arguments and those in *M* 10 is sufficient to conclude that the latter were also not devised by Sextus, but taken, at least in large part, from the same source as he uses for *PH* 3.140–50. The arguments, five in number, make up three-quarters of the passage on time in *PH*. They all argue towards the same conclusion:

- ‘time is wholly non-existent’ (οὐδὲ ἔστιν ὅλως χρόνος, 142);
- ‘<time> is non-existent’ (οὐδὲ ἔστιν <χρόνος>, 143);
- ‘time is nothing’ (οὐδὲ ἐστὶ τι χρόνος, 146);
- ‘<time> is wholly non-existent’ (οὐδὲ ἔστιν ὅλως <χρόνος>, 148);
- ‘<time> is wholly non-existent’ (οὐδ’ ὅλως ἔστιν <χρόνος>, 150).

The formulaic uniformity of the conclusions of the first and last two arguments is notable. It has no parallel in the corresponding arguments in *M* 10 and points to a higher degree of adaptation of the arguments to the sceptical goal.

As a Pyrrhonist, Sextus could easily justify the need for this multiplicity of arguments to the same conclusion in some general way: the self-evidence that time exists is very strong (as indeed it is); hence to reach true equipollence, we need to add a sufficient quantity of arguments against its existence. Or again, he could argue that there will be some argument for everyone, stronger and weaker ones, as needed for the individual in question who desires peace of mind.<sup>36</sup> He could point out that arguments that deal directly with time and its presumed properties are psychologically more likely to provide a counterweight to the self-evidence that time exists.<sup>37</sup> Sextus does none of the above. At the end of the passage on time he does not so much as hint that he believes he has achieved his goal of inducing suspension of judgment by setting arguments against time alongside the self-evidence in favour of time. After the series of direct arguments, he

<sup>36</sup> Cf. *PH* 3.280–1 for the general idea.

<sup>37</sup> Philosophically and historically, the arguments are of independent interest in so far as they introduce us to the main points of dispute in ancient discussions of time (see below).

simply produces a – somewhat lame – transition to the next topic, which is number: ‘since it seems that time cannot be observed (θεωρεῖσθαι) without number . . .’ (*PH* 3.151).

In sum, we can say about the *PH* 3 passage on time that in it, as in *M* 10, Sextus seems to follow two different tracks. This time (i) first the *self-evidence* of the existence of time is said to be countered with *arguments* against the existence of time; (ii) then the plurality of dogmatic accounts of time together with some sceptical tenets are used in one complex, three-pronged argument to establish that we can have no firm views about time. The complex argument (ii) follows the pronouncement of (i) and is followed by (iii) the partial realization of this pronouncement, that is, by a list of arguments against the existence of time. Sextus gives no indication that he is aware of the two different paths provided by (i) and (iii) on the one hand and (ii) on the other. Rather, he appears to use (ii) – contrary to its original purpose – in a somewhat forced attempt to support the non-existence of time.

### *Comparison of the two passages*

Comparing the *M* 10 and *PH* 3 passages, we note that in either one Sextus follows two different tracks: one grounded on the doxographical representation of dogmatic views on time, the other in the main consisting of a list of arguments each of which concludes the non-existence of time. Yet, the discrepancies are significant. In *PH* 3, in the spirit of Pyrrhonism, the list of arguments functions explicitly (or close to explicitly) as part of an opposition of self-evident appearances (φαινόμενα) on the one hand and arguments for *PH* contradictory theses on the other. This opposition is meant to lead to suspension of judgment. In *M* 10 the list is presented without being expressly embedded in a larger argument. Thus, on its own, it appears to be a piece of negative dogmatism, although we cannot rule out that the list was intended to provide support for the non-existence of motion (see above).<sup>38</sup>

As to the second track, both texts evidently draw from the same doxographical source.<sup>39</sup> But the use they make of this source is quite different. In parts I and III of the *M* 10 section, impasse language

<sup>38</sup> Something similar seems to be the case in Sextus’ account of space in *M* 10 (see Algra, in this volume). Algra argues that Sextus’ presentation is not dogmatic, since he uses ἀναπεῖν in the ‘weak’ sense of ‘to abolish in so far as the opponent’s arguments are concerned’. I am not entirely convinced by this move. In any case, no parallel argument can be made for the passage on time in *M* 10.

<sup>39</sup> With some additions in *M* 10, see below.

predominates (cf. *M* 10.169, 188, 215, 229, 247). The impasse is reached as a result of the two passages (parts I and III) demonstrating individually of each dogmatic account of time, or its substance, that it leads to contradiction. Beyond the attainment of impasse, little specifically Pyrrhonist language and method are applied. By contrast, in *PH* 3, the list of dogmatic accounts is followed by a complex blanket argument given in one short paragraph (*PH* 3.138–9), drenched in Pyrrhonist terminology and method (with impasse mentioned only once, in reference to the *PH* 2 discussion of criterion and proof).<sup>40</sup>

In both *M* 10 and *PH* 3 Sextus blurs the line between the two tracks. Each time, there are clear indications that he *portrays* both tracks as supporting the non-existence of time, though his purpose in arguing for the non-existence of time may not be the same: in *PH* 3 it is to balance the self-evidence of the existence of time; in *M* 10 it may serve as part of the argument against the existence of motion and to balance the self-evidence of the existence of motion.

Can we draw any conclusions regarding (i) where Sextus, in the context of his sceptical arguments(!), draws from sceptical or non-sceptical sources and (ii) where he produces his own arguments? We can, but they are conjectural only. We know that, at least since Aristotle, we find both detailed discussion and refutation of philosophical accounts of time, as well as arguments against the existence of time. Aristotle himself, in *Physics* 4.10, first discusses the question whether time exists and produces several arguments against its existence (*Ph.* 217b33–218a31); second he asks the question what time is and what its nature is (*Ph.* 218a31); and third he presents two answers to that question and rejects one and refutes the other (*Ph.* 218a33–b20, see also the second main part of the chapter). Needless to say, Aristotle does none of this for purely sceptical purposes. Still, in *Physics* 4.10 we find the foundations on which sceptical philosophers could have built their own discussions of time. It has been noted that in Sextus there are clear parallels to most of Aristotle's arguments against the existence of time.<sup>41</sup> This does not mean that Sextus drew directly from Aristotle's *Physics* for his passages on time. Most probably, over a longer period of time, Peripatetic, Epicurean, Academic sceptic and other authors added to Aristotle's list of arguments

<sup>40</sup> The two passages on time are thus consistent with, and mildly supportive of, the Bett Hypothesis that *M* is earlier than *PH* (see e.g. Bett in this volume): *M* shows more signs of earlier varieties of scepticism, *PH* more of later, possibly Sextan scepticism. The argument structure of the *PH* passage is more explicit and better presented than that in *M*.

<sup>41</sup> See, for example, Turetzky 1998: 30–4.

against the existence of time, provided further arguments against particular accounts of time and also expanded and introduced further arguments concerning the questions whether time is limited, divisible, generable, perishable and tripartite. Strato, for one, wrote a book about time, and both the Stoics and Epicureans had detailed views on the topic. Moreover, we find arguments similar to some of Sextus' direct arguments aimed at the Stoics by Plutarch (*Comm. Not.* 1081C–82D). As in the case of many other philosophical issues, Sextus would have been in the position to collect and adapt arguments from dogmatic and sceptic philosophers for his own Pyrrhonist purposes, rather than having to come up with arguments on his own.<sup>42</sup>

The bulk of the direct arguments for the non-existence of time may have been taken en bloc from a sceptical source that was satisfied with undermining the view that time exists, or from a dogmatic, perhaps Peripatetic, source that used such arguments dialectically, as Aristotle had done. The discrepancies in the presentation of the direct arguments in *M* 10 and the better-structured and more systematic version in *PH* 3 suggest that in the *PH* passage Sextus did some serious editorial work on his source.<sup>43</sup> The fact that both *M* 10 and *PH* 3 present almost identical formulations for many of the dogmatic accounts that originate in a doxographic source but then develop entirely different sceptic arguments in response can best be explained as follows. Sextus drew directly from a sceptic source which in turn used doxographic material. In *M* 10 he took over the sceptic response as well, whereas in *PH* 3 he supplied his own. This assumption finds support in the fact that the two responses diverge significantly in both method and vocabulary, and that only the response in *PH* is clearly as a whole in line with Sextus' brand of Pyrrhonism.<sup>44</sup> Having said that, it is worth noting that in part III of *M* 10 there are two passages which have no parallel in *PH* 3 and for which Sextus may have consulted additional sources and then added his own refutations. These sources would have been Aenesidemus on Heraclitus and Demetrius of Laconia on Epicurus. There is more on this last point in the last section of this chapter.

<sup>42</sup> See also Warren 2003 on predecessors to Sextus' direct arguments against time.

<sup>43</sup> The short version of the arguments against time in *M* 6.62–7 is much closer to *M* 10 than to *PH* 3. It could be a short version from *M* 10 or been taken from the source for the *M* 10 passage. In the latter case, *M* 10 would probably be very close to its source.

<sup>44</sup> The alternative is that Sextus drew directly from the same doxographical source each time but then produced entirely different responses, using different sceptic methods and vocabulary. Somehow this appeals less.

**The doxographical material on time  
and its substance: who said what?**

As is the case with much of Sextus' œuvre, the passages on time are of interest and value not just for the information they provide about scepticism, but also for the 'dogmatic' theories preserved in them. That being said, the 'dogmatic' segments on time *de facto* provide very little detailed philosophical material. Most of it does not go beyond commonplace doxography.<sup>45</sup> This, however, has its own attractions. The focus of this final section of the chapter is on the doxographical accounts on time, what they are, how they compare with surviving parallels, and to which philosophers we can attribute those accounts for which Sextus himself provides either no, or more than one, possible ascription. First, the texts themselves. I quote passages from both *M* 10 and *PH* 3. I leave out all sceptical responses and all longer bits of theory, in particular those by Strato, Aenesidemus and Demetrius. The philosophical theories of the last three will be discussed in a future paper.

The accounts of time (*PH* 3.136–7) and its substance (*PH* 3.138) in *PH* 3:

- (a) Some say that time is the interval of the motion of the whole – by whole I mean universe (136).
- (b) Others <say that it is> the motion of the universe itself (136).
- (c) Aristotle, or, as some say, Plato <says that it is> the number of the earlier and later in motion (136).
- (d) Strato, or as some say, Aristotle <says that it is> the measure of motion and rest (137).
- (e) Epicurus, as Demetrius of Laconia says, <says that it is> an accident of accidents, concomitant with days and nights, and seasons, and affections and absence of affections, and motions and rests (137).
- (f) With respect to substance, some have said that <time is> body, as Aenesidemus (138).
- (g) Others <that it is> incorporeal (138).

The accounts of time<sup>46</sup> and its substance in *M* 10:

- (h) Some say that time is the interval of the motion of the universe (170).
- (i) Others <that it is> the motion of the universe itself (170).
- (j) Aristotle said that time is the number of the first and later in motion (176);
- (k) <that time is> some co-recollection of the first and later in motion (176, implied by context to be Aristotle's view).

<sup>45</sup> A good introduction to doxography is Mansfeld 2008.

<sup>46</sup> Or rather the *ἐννοιαί* (215) or *νοήσεις* (181) or *ἐπίνοιαί* (188) of time, as Sextus refers to them.

- (*l*) Strato the natural philosopher ... <said that time is> the measure of all motion and rest (177).
- (*m*) Also, it seems that the following notion of time is ascribed to the natural philosophers Epicurus and Democritus: time is a day-like and night-like appearance (181).
- (*n*) Regarding substance, for example, some dogmatic philosophers say that time is a body ... (215). With respect to Heraclitus, Aenesidemus said that time is a body (216) ... those who hold that the substance of time is corporeal, I mean the Heracliteans (230).
- (*o*) Other <dogmatic philosophers say that time is> incorporeal (215).
- (*p*) Of those who say it is incorporeal, some <say> that it is a thing thought of as something in itself ... (215). The Stoic philosophers believed it (i.e. time) to be incorporeal ... and regard it as a thing thought of as something in itself (218). ...
- (*q*) ... others <say that it is> an accident of something else (215). Epicurus, as Demetrius of Laconia interprets him, says that time is an accident of accidents, concomitant with days and nights, and seasons, and affections and absence of affections, and motions and rests (219).
- (*r*) Plato, or as<sup>47</sup> some say, Aristotle, said that time is the number of the earlier and later in motion (228).
- (*s*) Strato the natural philosopher, or as others say, Aristotle <said that it is> the measure of motion and rest (228).

The texts present five full accounts of time, to which, for convenience, I will refer as follows:

|     |                      |           |              |          |                            |
|-----|----------------------|-----------|--------------|----------|----------------------------|
| (1) | The Interval Account | <i>PH</i> | ( <i>a</i> ) | <i>M</i> | ( <i>b</i> )               |
| (2) | The Motion Account   | <i>PH</i> | ( <i>b</i> ) | <i>M</i> | ( <i>i</i> )               |
| (3) | The Number Account   | <i>PH</i> | ( <i>c</i> ) | <i>M</i> | ( <i>j</i> ), ( <i>r</i> ) |
| (4) | The Measure Account  | <i>PH</i> | ( <i>d</i> ) | <i>M</i> | ( <i>l</i> ), ( <i>s</i> ) |
| (5) | The Accident Account | <i>PH</i> | ( <i>e</i> ) | <i>M</i> | ( <i>q</i> )               |

In addition, there are alternative or supplemental accounts to the Motion Account for Aristotle (i.e. (*k*)) and to the Accident Account for Epicurus (i.e. (*m*)), and the distinction of the substance of time as being corporeal or incorporeal ((*f*);(*g*);(*n*)-(*q*)).

### *Comparing M 10 and PH 3*

In *PH* 3 we have five accounts of time and two – alleged – accounts of the substance of time, all seven neatly stacked together. Almost every account

<sup>47</sup> 'Or as' in (*r*) and (*s*) translates the Greek ὡς δέ (ὡς δ'). In (*c*) and (*d*) it translates the Greek ἢ ὡς. Each time the Greek word translated by 'or' indicates a contrast, setting some people's view about the authorship apart from the other view about the authorship reported by Sextus.

in *PH* 3, mostly down to the very wording, has a parallel in *M* 10. However, the order in *M* 10 is somewhat messier. There, Sextus starts with a set of five accounts of time, interspersed with sceptical counters. These five accounts correspond very roughly to the first five of *PH* 3. Leaving aside small discrepancies in formulation, differences are, first, that in *M* 10 we obtain additional information connected with the Number and Measure Accounts; second, that the fifth account (i.e. (*m*)) is attributed to Epicurus and Democritus,<sup>48</sup> not to Epicurus through the lens of Demetrius, and differs from the account given in *PH* 3 (i.e. (*e*)); and third, that the Number Account is unambiguously attributed to Aristotle, the Measure Account unambiguously to Strato. When Sextus moves to the accounts of the substance of time at *M* 10.215, we have the same division as in *PH* 3: ‘some: corporeal (*f*), (*n*); others: incorporeal (*g*), (*o*)’. Additionally, we get a subdivision of the accounts of substance as incorporeal, together with attributions of the two views reported: for the Stoics, time is ‘a thing thought of as something in itself’ (*p*) whereas for Epicurus it is an accident (or property: σὺμπτωμα) (i.e. (*q*)). The account of the *substance* of time for Epicurus (*q*) is identical with the account of *time* attributed to Epicurus via Demetrius in *PH* 3 (i.e. (*e*)). It is also attributed in the same way. To complicate things further, next in *M* 10 comes a *repetition* of Number and Measure Accounts ((*r*) and (*s*)), this time implicitly presented as being about the substance of time, but with exactly the same uncertainty of attribution between Plato and Aristotle, and Aristotle and Strato, respectively, as in *PH* 3.

Thus effectively, we have two sets of five accounts in *M* 10, with the oddities that two accounts are used twice, and that in one case what counted as an account of time in *PH* 3 counts as an account of its substance in *M* 10. In each of the three sets of five, Aristotle, Strato and Epicurus are mentioned explicitly. Yet overall, there are four positions of uncertain or non-existent ascription: the Motion, Interval, Number and Measure Accounts. The similarities between the passages leave no doubt that Sextus uses the same source for *PH* 3 and *M* 10 and apparently uses it twice in *M* 10, though there may be alternative explanations of the latter repetition.

<sup>48</sup> I believe ‘Democritus’ may be a scribal error for ‘Demetrius’. Democritus and Epicurus were known to be fellow atomists and are occasionally quoted together in doxographical sources; moreover, Democritus was eminently better known than Demetrius. It is Demetrius of Laconia who is twice named by Sextus as the source for Epicurus’ account of time: *PH* 3.137 and *M* 10.219.



*General remarks on some other doxographical lists of accounts of time*

We can be certain that most of the accounts in Sextus come from a doxographical source, since we have various passages on the subject of time both in doxographical works and in other authors using such works, and since these texts show sufficient parallels.<sup>49</sup> The passages include

- Stobaeus, *Ecl.* 1.8.40–5 W (Pythagoras, Eratosthenes, Stoics, Xenocrates, Hestiaios, Strato, Epicurus, Antiphon, Critolaus, Aristotle, Zeno, Apollodorus, Posidonius, Chrysippus, Plato),
- Ps.-Plutarch, *Epit.* 1.21–2 (Pythagoras, Plato, Eratosthenes, Stoics),
- Ps.-Galen, *Hist. Phil.* 37 (Pythagoras, Plato, Eratosthenes, Stoics),
- Plutarch, *Quaest. Plat.* 1007A–B (Aristotle, Speusippus, some Stoics),
- Plotinus 3.7.7 (six accounts of time, without ascriptions),
- Platonis Definitiones* 411b (two Platonist accounts of time),
- Diogenes Laertius 7.141 (Stoics),
- Alexander of Aphrodisias, *On Time* (trans. Sharples, 59–60 = 93.6–34, five accounts without ascriptions),
- Simplicius, in *Cat.* 346.14–18 (reporting Iamblichus: Strato, Theophrastus, Aristotle),
- Simplicius, in *Cat.* 350.13–17 (Archytas, Aristotle, Zeno, Chrysippus),
- Simplicius, in *Ph.* 700.16–23 (Plato according to Eudemus, Theophrastus and Alexander; Pythagoreans; Archytas; some Stoics).

Thus all dogmatists mentioned by Sextus are covered in doxographical sources, except Heraclitus.<sup>50</sup> There are also parallels to all but one of the accounts of time in Sextus, including parallels to the unattributed ones. The account lacking is, again, the one allegedly by Heraclitus. (Details on all the parallels below.)

Next, I discuss the accounts of time in Sextus one by one, pointing out parallels and considering questions of attribution; both should help to improve our understanding of the accounts. I deal with the Motion Account before the Measure Account, since this facilitates the discussion of authorship for the latter.

<sup>49</sup> Other reasons for the assumption of a doxographical source are the concept/substance distinction remarked on earlier, which is common in doxographical texts; and the fact that in his books *Against the Physicists* Sextus unquestionably uses doxographical material for several other topics; see the contributions of Algra and Betegh to this volume.

<sup>50</sup> Something similar is true in the case of body, cf. Betegh, Appendix on the doxographical section, this volume. Heraclitus is not mentioned in the closest parallel to *M* 9.360–4, i.e. Ps.-Galen, *Hist. Phil.* 18, and Sextus appears to insert information about Heraclitus from a different source, probably Aenesidemus, given the parallel of *M* 9.360 with *M* 10.233. This fact might strengthen the case for the assumption that here and elsewhere Sextus drew directly from Aenesidemus' writings on Heraclitus (see below). On Aenesidemus' 'appropriation' of Heraclitus see also Polito 2004.

*The motion account*

‘Time is the motion of the universe.’<sup>51</sup> Bury and Annas–Barnes consider this account to be Platonic, each citing Aristotle, *Ph.* 218a33–b1 and Plato, *Ti.* 47d ff. as evidence.<sup>52</sup> I do not disagree with this attribution, but I want to draw the reader’s attention to the fact that it is in no way straightforward. First, the very formulation we find in Sextus *M* 10 appears to be unique. Second, Aristotle does not attribute the corresponding account to Plato. He provides no ascription. In fact, the only source that explicitly attributes a reasonably similar account to Plato is Simplicius, and even his is not a direct attribution to Plato. Third, the cited *Timaeus* passage needs to be stretched (and then condensed) a bit, before anything like Sextus’ Motion Account pops out.

Aristotle, at *Ph.* 4.10.218a33–b1, writes this: ‘Time . . . For some say that it is the motion of the whole, others <that it is> the sphere itself.’<sup>53</sup> Aristotle’s verdict is that the first account gets things partially right whereas the second is too simple-minded even to be discussed (218b1–20).<sup>54</sup> Aristotle’s first account differs from Sextus’ in that it has ‘the whole’ (τὸ ὅλον) instead of ‘the universe’ (ὁ κόσμος), but ‘the whole’ seems to be used synonymously with ‘the universe’. There are a number of related reports:

Alexander of Aphrodisias, *On Time* (93.10): ‘the motion of the sphere’;  
 Simplicius, *In Ph.* 700.16–18: ‘time is the motion, that is the revolution, of the whole, as Plato [said] according to Eudemos, Theophrastus and Alexander’ (τὴν τοῦ ὅλου κίνησιν καὶ περιφορὰν<sup>55</sup>);  
*Platonis Def.*: ‘time: the motion of the sun’ (ἡλίου κινήσεις);  
 Plotinus 3.7.7: ‘the motion of the all’ (τὴν τοῦ παντός κίνησιν);

<sup>51</sup> οἱ δὲ αὐτὴν τὴν κίνησιν τοῦ κόσμου (*PH* 3.136); οἱ δὲ αὐτὴν τὴν τοῦ κόσμου κίνησιν (*M* 10.170). Both times, the ‘itself’ (αὐτὴν) is not part of the account. It has been inserted as a way of contrasting the Motion Account with the Interval Account, see below.

<sup>52</sup> Bury, *Sextus Empiricus, Outlines of Pyrrhonism* 3.418, Annas & Barnes 1994: 180. I assume both actually mean *Ti.* 37d ff.

<sup>53</sup> ὁ χρόνος . . . οἱ μὲν γὰρ τὴν τοῦ ὅλου κίνησιν εἶναι φασιν, οἱ δὲ τὴν σφαῖραν αὐτὴν, Arist. *Ph.* 4.10.218a33–b1.

<sup>54</sup> This second view is attributed to Pythagoras in Stobaeus, *Ecl.* and Ps.-Plutarch, *Epit.* See also: Simplicius, *in Ph.* 700.17–18, where he, in his comments on the Aristotle passage, attributes the view that time is the sphere of the heavens to some Pythagoreans.

<sup>55</sup> I read the καὶ as exegetical, since it seems to explain the kind of motion Plato means rather than provide an alternative to that motion. This seems plausible in itself and provides a parallel account to Aristotle’s, which is fitting, since the three authors are Peripatetics and were familiar with Aristotle’s *Physics*. In fact, they all appear to have attributed the account to Plato in the context of their commentaries on Aristotle’s anonymous reference in the *Physics*. (Verity Harte suggests to me that perhaps the ascription was originally a genuinely open question of Aristotle exegesis, albeit resolved in the same way by the Peripatetics mentioned.)

Stobaeus, *Ecl.* 1.8.45 W and Ps.-Plutarch, *Epit.* 1.22: '[Plato]<sup>56</sup> <calls> the motion of the heaven the substance of time' (Πλάτων οὐσίαν χρόνου τὴν τοῦ οὐρανοῦ κίνησιν).

The linguistic variety here is great, but perhaps not too surprising if this family of accounts is indeed meant to give us Plato's notion of time from the *Timaeus* in a nutshell. (Try it yourself, with a word limit of five.) The accounts are, of course, not all equivalent. The sun is only part of the heaven, or of the sphere. And whereas all three expressions, κόσμος, τὸ πᾶν and τὸ ὅλον, can be used to refer to the universe including the sublunar part as a whole, κόσμος can also refer to the heaven alone, whereas this is a little less clear of τὸ πᾶν and τὸ ὅλον.<sup>57</sup> We may ask where exactly in the *Timaeus* we find anything similar to any of the above accounts.<sup>58</sup> Here are some passages that may be of relevance:

*Ti.* 37d5–e4: . . . he planned to make some moving copy/image of eternity, and at the same time when he structured the heaven, he made an eternal image/copy that moves in accordance with number of the eternity that remains in the unity, this <image/copy><sup>59</sup> which we call time. For, together with the construction of the heaven he devised the production of days and nights and months and years, which did not exist before the heaven came into being. And these are all parts of time; and 'was' and 'will be' are generated forms of time . . .<sup>60</sup>

*Ti.* 38a: the 'was' and 'will be' are appropriately said of the coming-to-be which proceeds in time; for they are both motions.<sup>61</sup>

*Ti.* 38c: regarding the generation of time, the sun and the moon and five other stars, which are called the 'planets', came into being so that they determine and preserve the numbers of time.<sup>62</sup>

<sup>56</sup> 'Plato' only in Ps.-Plutarch; in Stobaeus it is clear from the context that this is Plato's account.

<sup>57</sup> At *Ti.* 37d2 and d6 Plato can be read as treating τὸ πᾶν and οὐρανός as interchangeable. As for Aristotle, Hussey ([1993] 141) understands him as using τὸ ὅλον for 'the sphere of the fixed stars', and thus for an *ordered* whole. In Greek τὸ πᾶν is also used as 'das All' is in German, i.e. to denote the universe. The Stoics used it to denote the universe (κόσμος) together with the void (e.g. S.E. *M* 9.332; Stobaeus, *Ecl.* 1.21).

<sup>58</sup> This is not to deny that most accounts may *de facto* be several times removed from Plato's original text.

<sup>59</sup> Grammatically, 'this' could refer to 'number', though the context, e.g. 39d quoted below, suggests it refers to 'image'.

<sup>60</sup> εἰκὼς δ' ἐπενόει κινητὸν τινα αἰῶνος ποιῆσαι, καὶ διακοσμῶν ἅμα οὐρανὸν ποιεῖ μένοντος αἰῶνος ἐν ἐνὶ κατ' ἀριθμὸν ἰοῦσαν αἰῶνιον εἰκόνα, τοῦτον δὲ δὴ χρόνον ὠνομάκαμεν. ἡμέρας γάρ καὶ νύκτας καὶ μῆνας καὶ ἐνιαυτούς, οὐκ ὄντας πρὶν οὐρανὸν γενέσθαι, τότε ἅμα ἐκείνῳ συνισταμένῳ τὴν γένεσιν αὐτῶν μηχανάται· ταῦτα δὲ πάντα μέρη χρόνου, καὶ τό τ' ἦν τό τ' ἔσται χρόνον γεγονότα εἶδη . . .

<sup>61</sup> τὸ δὲ ἦν τό τ' ἔσται περὶ τὴν ἐν χρόνῳ γένεσιν ἰοῦσαν πρέπει λέγεσθαι – κινήσεις γὰρ ἔστων.

<sup>62</sup> ἐξ οὖν λόγου καὶ διανοίας θεοῦ τοιαύτης πρὸς χρόνον γένεσιν, ἵνα γεννηθῇ χρόνος, ἥλιος καὶ σελήνη καὶ πέντε ἄλλα ἀστροί, ἐπὶ κλίην ἔχοντα (5) πλανητά, εἰς διορισμὸν καὶ φυλακὴν ἀριθμῶν χρόνον γέγονεν. The numbers are day, month, year and some others.

*Ti.* 39d: time being the wanderings of these (i.e. the planets).<sup>63</sup>

*Ti.* 42d: the moon and the remaining organs (planets, stars, cf. 38c) of time.<sup>64</sup>

Taking these passages and their general context together, we can see how the doxographical accounts of time as motion of the heaven, the universe, the all, the whole and the sphere may have arisen. For they allow a reading, among others, that Timaeus has a view according to which time is the revolutions of these heavenly bodies, and, taken as a whole, the motion of the heaven or the All. Moreover, although Sextus' account, with ὅλον, is unique, this should not worry us greatly. In *PH* 3.136, in the very same sentence, with respect to account (1), Sextus says 'I mean by the whole the universe' (ὅλον δὲ λέγω τὸν κόσμον). This makes it likely that *Sextus* uses 'the whole' and 'the universe' as equivalents in this context. The frequency with which this family of accounts occurs in doxographical lists without any ascriptions certainly suggests the position of a philosopher of rank. This, together with the fact that two members of the family are ascribed to Plato, and with the similarity to the *Timaeus*, seems sufficient evidence that we have an account that was generally considered an acceptable way of presenting Plato's view (δόξα) of time.<sup>65</sup> Whether Sextus was aware of this is a different question. Given the meticulous way in which he reports the authors of most of the other positions, he may not have been.

### *The interval account*

'Time is the/an interval of the motion of the universe' (χρόνον . . . διάστημα τῆς τοῦ κόσμου κινήσεως, *M* 10.170); or 'the/an interval of the motion of the whole' (χρόνον γὰρ εἶναι . . . διάστημα τῆς τοῦ ὅλου κινήσεως, *PH* 3.136). I start with a note on the various possible translations of the Greek διάστημα in the context at issue. This Greek word covers a range of related meanings, in dictionaries given, for example, as 'interval', 'extension' and 'dimension'. In the case of time, depending on context, any of these three

<sup>63</sup> χρόνον ὄντα τὰς τούτων πλάνας; i.e. the seven (eight?) planets, including sun and moon, see *Ti.* 38c.

<sup>64</sup> ἔσπειρεν τοὺς μὲν εἰς γῆν, τοὺς δ' εἰς σελήνην, τοὺς δ' εἰς τὰλλα ὅσα ὄργανα χρόνου.

<sup>65</sup> Here I do not discuss the (historical and philosophical) question whether the Motion Account was understood by those reporting it (i) as an account of motion as the essence (nature, substance) of time, or (ii) as an account of the motion of the heavens as carving out a regular period of time that provides a basis for measuring time (by dividing it into smaller periods of time). Of the seven counter-arguments in *Sextus M* 10.170–5, the first, second, fourth and sixth take the account along the lines of (i); the third, fifth and seventh seem compatible with (i) and (ii).

can be an acceptable translation. I will list a number of different ways in which the phrase 'διάστημα of the motion of ...' can be understood when part of an account or definition of time. I will *not* make any final decision among them *nor* give any philosophical interpretation of the phrase, since we need to know whose account we have here before we can provide an interpretation. (As I said in my introduction, this chapter is to provide the basis for philosophical treatment of the Sextus passages but is not itself a philosophical discussion.)

(i) The translation 'interval' makes sense for the following cases: suppose the motion in the account is a particular motion of an object that starts at  $t_1$  and ends at  $t_2$ . For reasons of simplicity, also suppose that the sun moves around the earth in one day and that its motion is cyclical. Then time, as an interval of a motion, could be (a) for example the portion of the motion of the sun that started today at midnight and ends tomorrow at midnight. Or (b) the particular period from midnight today until midnight tomorrow in which this motion took place, and which we may call 'this Tuesday'. Or (c) the length or duration of this particular period, which we may call a 'day', and which is obtained as the result of an abstraction from (a) or from (b). This duration could be used as a temporal unit or yardstick to measure the length of other motions (two days long, one quarter of a day long, etc., using division, addition, multiplication, as required). In the case of cyclical motion, abstraction would be aided by the fact that the next motion of the same kind, from  $t_2$  to  $t_3$ , say, would be of the same length. Thus time understood as (a), (b) or (c) would in each case provide a basis for our ability to measure periods of time, but manifesting different levels of abstraction.

(ii) The translation 'extension' makes sense for cases in which time is understood as the extension of *any* motion, without any specific period of time or duration being associated with it. Thus all particular motions would be alike in that they have an extension from some  $t_n$  to some  $t_m$ . The motions manifest an earlier and a later, or – alternatively – are manifested in something that has an earlier and a later. Either way, the specific duration of the extension of each motion may differ. The point of accounts of time along these lines would be to state that an object's motion (or at least locomotion) has, in addition to the three spatial extensions length, width and height, an extension involving an earlier and a later, or a duration. In this understanding, time does not provide a unit and cannot serve as a yardstick.

(iii) The translation ‘dimension’ makes sense in cases in which either *all* motion or motion *in general* is at issue. Accounts of time as the dimension of all motion (or of motion in general) can be seen as contrasting time with the dimensions of space, which cover left–right, front–back and up–down (say). The dimension of time adds the directionality of the earlier–later to the three spatial dimensions. Again, motion can be seen as being a necessary condition for there to be such a dimension (relationalism with regard to time), or such a dimension can be seen as a necessary condition for motion (absolutism with regard to time).

Finally, ‘extension’ also lends itself as a generic term that covers the various possible uses of διάστημα in the context of time, and it is my translation of choice where I find it impossible to decide which of the three terms, ‘interval’, ‘extension’ or ‘dimension’ would be best to use. Armed with these terminological specifications, I return to the accounts in Sextus. The use of two definite articles together with the specification that the motion is that of the universe (‘διάστημα of *the* motion of *the* universe’) makes the translations ‘extension’ and ‘dimension’ unsuitable. Hence I use ‘interval’. The identification of the interval that is time with the portion of the motion itself, namely (i)(a) above, is unlikely, since it seems to cancel out the contrast with the Motion Account. However, from the context it is not fully clear whether we should read ‘the interval’ or ‘an interval’, and as a result we are still left with several possible readings. Time could be *an* interval of the motion of the universe in several ways. If the universe moves cyclically, it could move one cycle (i)(b) or the duration of one cycle (i)(c) of the cosmic motion. Or it could be simply any period of time that is part of the cosmic motion, whether the latter is taken as cyclical or in its entire (possibly infinite) extension. Time could be *the* interval of the motion of the universe in the sense that it is one cycle (or the duration of one cycle) of the cyclical motion of the universe. This reading would not differ substantially from the first with the indefinite article. Without knowing the philosophical authors of the accounts or the context in which they were introduced, further eliminations of readings seem inadvisable. Thus I move to the question of ascription of the account.

Although the Interval Account in Sextus has traditionally been ascribed to the Stoics,<sup>66</sup> this attribution is more problematic than that of the Motion Account to Plato. In this case, too, neither in *PH* 3 nor in *M* 10 is the account attributed to any philosopher or school. Still, this time we

<sup>66</sup> E.g. Bury 1933: 418; Annas & Barnes 1994: 180; *SVF* 2.513.

have too many rather than too few ascriptions of this exact account in other doxographical sources: the authors, where named, are Plato and the Stoics:

In the list of accounts of time in Stobaeus *Ecl.* 1.8.45 W we read ‘Plato <says that time is> a moving image of eternity or the/an interval of the motion of the universe’ (Πλάτων αἰῶνος εἰκόνα κινητήν, ἢ διάστημα τῆς τοῦ κόσμου κινήσεως). This has a literal parallel in Ps.-Plutarch, *Epit.* 21; and Ps.-Galen, *Hist. Phil.* 37 has ‘Plato <believed that time is> the/an interval of the motion of the universe’.<sup>67</sup>

In Stobaeus, *Ecl.* 1.8.40 and 42 W, as part of the report of Stoic theories of time, we find the following:<sup>68</sup>

Zeno says that time is the/an interval of motion ... (Ζήνων ἔφησε χρόνον εἶναι κινήσεως διάστημα ... , *Ecl.* 1.8.40);

Apollodorus in his *Natural Philosophy* defines time as follows: time is the interval of the motion of the universe (Ἀπολλόδωρος δ’ ἐν τῇ Φυσικῇ τέχνῃ οὕτως ὁρίζεται τὸν χρόνον· Χρόνος δ’ ἐστὶ τῆς τοῦ κόσμου κινήσεως διάστημα, *Ecl.* 1.8.42);

Posidonius ... defines time thus: interval of motion or measure for fastness and slowness (Ποσειδωνίου ... τὸν δὲ χρόνον οὕτως ὁρίζεται· διάστημα κινήσεως ἢ μέτρον τάχους τε καὶ βραδύτητος, *Ecl.* 1.8.42);

Chrysippus <says> that time is an interval of motion, in accordance with which it is sometimes called measure of fastness and slowness; or the interval that accompanies (is concomitant with) the motion of the universe. (Ὁ δὲ Χρύσιππος χρόνον εἶναι κινήσεως διάστημα, καθ’ ὃ ποτὲ λέγεται μέτρον τάχους τε καὶ βραδύτητος· ἢ τὸ παρακολουθοῦν διάστημα τῇ τοῦ κόσμου κινήσει, *Ecl.* 1.8.42).

Diogenes Laertius 7.141 writes about the Stoics: ‘time is incorporeal, being the/an interval of the motion of the universe’ (τὸν χρόνον ἀσώματον, διάστημα ὄντα τῆς τοῦ κόσμου κινήσεως ... ).

Plutarch, in *Quaest. Plat.*, attributes to some Stoics: ‘interval of motion’ (διάστημα κινήσεως, *Quaest. Plat.* 8.4.1007A–B).

In his *Categories* commentary Simplicius writes: ‘Of the Stoics, Zeno says that time is the/an interval of motion without qualification, whereas Chrysippus <says that it is> the/an interval of the motion of the universe’ (τῶν δὲ Στωϊκῶν Ζήνων μὲν πάσης ἀπλῶς κινήσεως διάστημα τὸν χρόνον εἶπε· Χρύσιππος δὲ διάστημα τῆς τοῦ κόσμου κινήσεως, Simplicius, in *Cat.* 350.15–17 (Kalbfleisch), also *SVF* 2.510).

In the *Didaskalikos* of the Middle-Platonist Alcinous, at ch. 14, section 6, we find, without attribution but no doubt intended as an interpretation or summary of Plato’s view, ‘For he <i.e. god> created time as the/an interval

<sup>67</sup> The three passages have a common ultimate doxographical source, see below.

<sup>68</sup> This passage in Stobaeus is generally thought to come from (an) Arius Didymus. For this ascription see e.g. Mansfeld & Runia 1997: 238–65.

of the motion of the universe' (Καὶ γὰρ τὸν χρόνον ἐποίησε τῆς κινήσεως τοῦ κόσμου διάστημα).

Philo, *De Aeternitate Mundi* 54 has: 'Perhaps some Stoic . . . interval of the motion of the universe' (τάχα τις . . . Στωικός . . . τὸν χρόνον . . . διάστημα τῆς τοῦ κόσμου κινήσεως) and *Aet. Mund.* 52 and 53 without attribution 'define time as the interval of the motion of the universe' and 'time . . . interval of the cosmic motion' (ὀρίζεσθαι χρόνον διάστημα τῆς τοῦ κόσμου κινήσεως and διάστημα δὲ κοσμικῆς κινήσεως . . . ὁ χρόνος . . .). Cf. also *Aet. Mund.* 4 'as it seems to the Stoics . . . the/an interval of the motion of it (i.e. the universe) which they say is time' (ὡς δοκεῖ τοῖς Στωικοῖς . . . οὗ <i.e. τοῦ κόσμου> τῆς κινήσεως φασιν εἶναι τὸν χρόνον διάστημα). In *De Opificio Mundi* 26, line 4, Philo presents the same account without attribution (διάστημα τῆς τοῦ κόσμου κινήσεως ἐστὶν ὁ χρόνος).<sup>69</sup>

Finally, Plotinus 3.7.7 has 'time . . . interval of motion' (χρόνος . . . διάστημα κινήσεως) in his unattributed classification of views on time; and, when refuting the various views, 'but if <time is defined as> the/an interval <of the motion> of the whole . . .' (Εἰ δὲ τῆς τοῦ παντός <κινήσεως> διάστημα . . ., 3.7.8).

Thus we have virtually identical accounts reported three times for Plato, twice for Chrysippus, once for Apollodorus, three times for *the* or *some* Stoics, and in addition a number of very similar accounts attributed to individual Stoics and to the Stoics in general, plus an unattributed occurrence in Philo, an unattributed occurrence in Alcinoüs that is intended as Platonic and an unattributed mention in Plotinus.<sup>70</sup> No source attributes the Interval Account to anyone other than Plato or Stoics. So whose view is Sextus reporting? Sextus attributes no other account of the notion of time (exclusively) either to the Stoics or to Plato. In this respect, both are good candidates for being the author of the Interval Account. The question needs an answer based on more general considerations. To begin with, the question is ambiguous. For in the – not impossible – case that both parties actually used this definition, one correct answer would be 'both Plato's and the Stoic view'. However, in this case we could still ask: did the source Sextus drew from (or any earlier source in line) report this account *as* a Platonic or *as* a Stoic account? Of course, we may be getting ahead of ourselves here. First let us consider whether one of the attributions may be mistaken. In that case the refined question becomes irrelevant. I argue that the attribution to Plato is an error based

<sup>69</sup> Further without attribution, in the *Suda*, entry χρόνος, and in *Commentaria in Dionysii Thracis Artem Grammaticam, Scholia Vaticana* 249.7, see below.

<sup>70</sup> All of Plotinus' definitions are unattributed. He also has one that seems clearly Platonic, time as motion of the all, at 3.7.7; and at 3.7.8, towards the end, he mentions time as the sphere.



on a lacuna that occurred somewhere in the transmission process of the doxographical material on which Stobaeus, Ps.-Plutarch and Ps.-Galen draw.

First, let me try to make the case *for* Platonic authorship. Is there any evidence in Plato's own works that he had a notion of time that fits the Interval Account? Or is there any evidence that some Platonists interpreted Plato's theory of time in such a way that it would fit this account? The most promising approach is to start with Stobaeus. He reports about Plato's view on time:

Plato <says that time is><sup>71</sup> the moving image/copy of eternity or the interval of the motion of the universe; it has come to be in accordance with a plan; and the substance of time is the motion of the heaven; for in the *Timaeus* he says the following:<sup>72</sup>

and then he quotes from the same *Timaeus* passage on time that we regarded as a plausible ancestor theory for the Motion Account. In that passage there is no account of time, nor any other sentence, that suggests itself directly as the origin for the Interval Account. At most, we find some hints from which we could fabricate the account if we do not mind bending Plato's words a little. Plato repeatedly talks about the numbers of time (e.g. *Ti.* 37d–e; 38c; 39d, see quotations above). Days, nights, months and years are portions of time (37d) that are the result of the movements of the planets, which by so moving both determine (in the sense of manifest, I take it) and preserve the numbers of time (38c). The complete number of time is that which results when the circuits of all eight planets finish together, thus determining the complete year (39d). Hence, the numbers of time correspond to (the length of) the portions of time. This allows us to think of those numbers as being represented by (or manifested as) *intervals in time*. If additionally, we think of the portions of time as being themselves periods of time, we can think of those (periods of) times as being intervals of the motion of the universe (in the sense of the heaven or heavenly sphere). Then we can say that *a* (period of) *time* is *an interval* of the motion of the universe. Perhaps we can go one step further and say that *the complete year* is *the* (period of) *time* which is *the interval of the motion of the universe*. We can venture still further: rather than thinking of the Motion Account as the Platonic account of time, we take it as the Platonic account of the substance of time. By contrast, the Interval

<sup>71</sup> This is understood only, not an abbreviation. There is no sentence in the vicinity that starts 'x says that time is ...'

<sup>72</sup> Πλάτων αἰῶνος εἰκόνα κινητὴν, ἣ διάστημα τῆς τοῦ κόσμου κινήσεως· γενητὸν δὲ κατ' ἐπίνοιαν· οὐσίαν δὲ χρόνου τὴν οὐρανοῦ κίνησιν· λέγει γὰρ ἐν τῷ Τιμαίῳ οὕτως.

Account would then define time *qua* period of time. Remember that Stobaeus, Ps.-Plutarch and Ps.-Galen – the very doxographical tradition that attributes the Interval Account to Plato – attribute a variation of the Motion Account, namely ‘the motion of the heavens’, to Plato as the account of the substance of time. Thus, we may conclude, we are vindicated in taking this doxographical tradition at its word for attributing the Interval Account to Plato. And if this is so, why could it not be that Sextus is following the same doxographical tradition?

My response to this line of reasoning from Plato’s theory of time is that for various reasons the previous kind of argument does not have much plausibility. I do not question the possibility that Plato may have been interpreted by some later thinkers in this way. Rather, it is implausible that the doxographical tradition on which Sextus draws was among these, for reasons which in part concern the passages from Stobaeus, Ps.-Plutarch and Ps.-Galen, and in part Sextus’ presentation of the accounts in their linguistic context.

There can be little doubt that Stobaeus, Ps.-Plutarch and Ps.-Galen ultimately draw upon the same doxographical source for the account of time at issue (Ps.-Galen via Ps.-Plutarch). This source had been named Aëtius by Diels in his *Doxographi Graeci*. And although both his arguments for and his reconstruction of this common source have many defects, the underlying hypothesis of a common source has survived intact.<sup>73</sup> For our purposes it will be helpful to provide the entire passages from Ps.-Plutarch and Ps.-Galen as a basis for comparison. Ps.-Plutarch has

(21) Περὶ χρόνου. Πυθαγόρας τὸν χρόνον τὴν σφαῖραν τοῦ περιέχοντος εἶναι. Πλάτων αἰῶνος εἰκόνα κινητὴν ἢ διάστημα τῆς τοῦ κόσμου κινήσεως. Ἐρατοσθένης τὴν τοῦ ἡλίου πορείαν. (22) Περὶ οὐσίας χρόνου. Πλάτων οὐσίαν χρόνου τὴν τοῦ οὐρανοῦ κίνησιν. Οἱ πλείους τῶν Στωικῶν αὐτὴν τὴν κίνησιν. καὶ οἱ μὲν πλείους ἀγένητον τὸν χρόνον, Πλάτων δὲ γενητὸν κατ’ ἐπίνοιαν.<sup>74</sup>

Ps.-Galen has

(37) Περὶ χρόνου. Τὸν χρόνον εἶναι Πυθαγόρας ὑπέειλε τὴν σφαῖραν τοῦ περιέχοντος. Πλάτων δὲ διάστημα τῆς τοῦ κόσμου κινήσεως. Ἐρατοσθένης δὲ

<sup>73</sup> Cf. Mansfeld & Runia 1997, esp. chs. 3 and 4, and 2009; see also Mejer 2006.

<sup>74</sup> ‘(21) On time. Pythagoras <says> that time is the sphere of the containing body. Plato <says that it is> the moving image/copy of eternity or the interval of the motion of the universe. Eratosthenes <says that it is> the journey of the sun. (22) On the substance of time. Plato <says> that the substance of time is the motion of the heaven. Most of the Stoics <says that it is> the motion itself <of the heaven>. And most <says> that time is ungenerated, but Plato <says> that it has come to be in accordance with a plan.’

τὴν τοῦ κόσμου πορείαν. (38) Περὶ οὐσίας χρόνου. Τοῦ δὲ χρόνου τὴν οὐσίαν οἱ Στωικοὶ ἡλίου τὴν κίνησιν νομίζουσιν. Πλάτων δὲ τὴν πορείαν τούτου. καὶ τινὲς μὲν ἀγένητον τὸν χρόνον εἶναι, Πλάτων δὲ γενητόν.<sup>75</sup>

Ps.-Galen differs substantially from Ps.-Plutarch on four points: he has only the Interval Account attributed to Plato; he has κόσμου for ἡλίου in Eratosthenes' definition of time; ἡλίου for αὐτὴν for the Stoics; and τὴν πορείαν τούτου for τὴν τοῦ οὐρανοῦ κίνησιν for Plato on the substance of time. Stobaeus is with Ps.-Plutarch on all four counts. As the account of the substance of time as motion of the sun is unmotivated and not elsewhere substantiated for the Stoics, I assume that it made its way there from the definition of Eratosthenes, where the resulting lacuna was plugged with κόσμου. The substance of time for Plato as 'journey of the sun' is not well motivated either, so again Ps.-Plutarch's τὴν τοῦ οὐρανοῦ κίνησιν is preferable, since it has a better grounding in the *Timaeus*.<sup>76</sup> Stobaeus has the following text (in *Ecl.* 1.8.40 W):

**Πυθαγόρας** τὴν σφαῖραν τοῦ περιέχοντος. **Ερατοσθένης** τὴν τοῦ ἡλίου πορείαν. **Οἱ Στωικοὶ** χρόνου οὐσίαν αὐτὴν τὴν κίνησιν. Οἱ πλείους ἀγένητον τὸν χρόνον.<sup>77</sup>

(For the next two paragraphs, it may be helpful to compare Diels' *Doxographi Graeci*, p. 318.) Diels assumed that Stobaeus collected the passages about Plato on time from his source and put them together in front of his *Timaeus* quotation. This *general* hypothesis must be correct.<sup>78</sup> First, what Stobaeus reports about Plato has an exact correlation in the three pieces on Plato in Ps.-Plutarch.<sup>79</sup> Second, the alternative would be that Ps.-Plutarch cut up the doxographical passage on Plato on time from his source into three parts and interspersed these parts into his list of views of time, which hitherto would have contained only three views: those on Pythagoras and

<sup>75</sup> '(37) On time. Pythagoras assumed that time is the sphere of the containing body. Plato <assumed that it is> the interval of the motion of the universe. Eratosthenes <assumed that it is> the journey of the universe. (38) On the substance of time. The Stoics believe that the substance of time is the motion of the sun. Plato <believes that> it is its journey. And some <believe> that time is ungenerated, but Plato <believes> that it has come to be'.

<sup>76</sup> This result is in line with the conclusion of Mansfeld & Runia 1997: 141–52 that Ps.-Galen, *Hist. Phil.*, being essentially an epitome of Ps.-Plutarch, *Epit.*, is often somewhat carelessly produced.

<sup>77</sup> 'Pythagoras <says that time is> the sphere of the containing body. Eratosthenes <says that it is> the journey of the sun. The Stoics <say> that the substance of time is the motion itself <of the heaven>. Most <say> that time is ungenerated.'

<sup>78</sup> Of course, there may have been an intermediate source who did this and whom Stobaeus copied.

<sup>79</sup> The only differences are two missing 'Platos' in Stobaeus – which are not needed because the sentences occur in a direct sequence – plus a missing 'δε'.

Eratosthenes on time and the one of the Stoics on the substance of time. This seems most implausible. Where I differ from Diels is in my reconstruction of where *in Stobaeus' source* the three clauses on Plato would have been (and with where Diels inserted the subtitles 'On time' and 'On the substance on time').<sup>80</sup> Here is my suggestion:<sup>81</sup>

Πυθαγόρας τὴν σφαῖραν τοῦ περιέχοντος. Πλάτων αἰῶνος εἰκόνα κινητὴν, ἢ διάστημα τῆς τοῦ κόσμου κινήσεως. **Ἐρατοσθένης** τὴν τοῦ ἡλίου πορείαν. [Πλάτων] οὐσίαν δὲ χρόνου τὴν οὐρανοῦ κίνησιν. Οἱ Στωικοὶ <χρόνου οὐσίαν> αὐτὴν τὴν κίνησιν. Οἱ πλείους ἀγέννητον τὸν χρόνον. [Πλάτων] γενητὸν δὲ κατ' ἐπίνοιαν.<sup>82</sup>

Assuming that two accounts of time attributed to Plato are thus sandwiched between those by Pythagoras and Eratosthenes, let us consider them more closely. First, the Platonic account, 'a moving/movable copy/image of eternity' comes straight from *Ti.* 37d, 'he planned to make some moving copy/image of eternity, and ... he made an eternal copy/image, that moves in accordance with number ... this <image/copy> which we call time' (εἰκὼ δ' ἐπενόει κινητὸν τινα αἰῶνος ποιῆσαι, καὶ ... κατ' ἀριθμὸν ἰοῦσαν αἰώνιον εἰκόνα, τοῦτον δὲ δὴ χρόνον ὠνομάκαμεν). Thus, we have a good and well-authenticated definition of time for Plato in the text before the Interval Account, and one that seems much closer to Plato's actual theory than the latter. Second, although we gain an account of the

<sup>80</sup> Diels has: 'On time': Pythagoras, Plato's first two accounts, Eratosthenes; 'On the substance of time': Plato's third account, Xenocrates, Hestaios, Strato, Epicurus, Antiphon and Critolaus, the Stoics (*DG* 318).

<sup>81</sup> In more detail: I think Diels (*DG* 318) went wrong in inserting the accounts of Xenocrates, Hestaios, Strato, Epicurus, Antiphon and Critolaus after Plato on the substance of time and before the Stoics on the substance of time, and by putting the title 'On the substance of time' (Περὶ οὐσίας χρόνου) in front of Plato on the substance, thus governing seven accounts. It is preferable to assume that Ps.-Plutarch and Stobaeus had the same whole passage in front of them that Plutarch reports, and that Stobaeus added the accounts of time by Xenocrates, Hestaios, Strato, Epicurus, Antiphon and Critolaus *after* that passage, excerpting them from one or more additional sources. In this way no long gap has to be postulated for Plutarch. The four following accounts, which grammatically are accounts of time and which do not mention substance, would be just accounts of time. Two of them are reported elsewhere as just that (Epicurus and Strato). And Stobaeus' entire (very long) passage on time is entitled Περὶ χρόνου οὐσίας καὶ μερῶν καὶ πύσων [ἀν] εἴη αἴτιος and thus allows for a transition from accounts of time to accounts of its substance and back. In any event, Stobaeus returns to accounts of time *simpliciter* after the Stoics, adding the accounts of Aristotle, Aristotelians, Zeno, Posidonius, Apollodorus and Chrysippus. Also, Diels ends up with a strangely long list of substance-of-time accounts after accounts of time of only three philosophers.

<sup>82</sup> 'Pythagoras <says that time is> the sphere of the containing body. Plato <says that it is> the moving image/copy of eternity or the interval of the motion of the universe. Eratosthenes <says that it is> the journey of the sun. [Plato] <says> that the substance of time is the motion of the heavens. The Stoics <say that it is> the motion itself <of the heaven>. Most <say> that time is ungenerated. But [Plato] <says> that it has come to be in accordance with a plan.'

Stoics for the substance of time, we have no Stoic account for time itself (but two for Plato!). Third, lacunae and attribution errors in doxographies are frequent. Fourth, we could adduce an argument from quantity: we have at least five attributions of an account of time that includes the phrase ‘interval of the motion of the universe’ (διάστημα τῆς τοῦ κόσμου κινήσεως) to Stoics, but no such source for Plato beyond the three under discussion, which all originate from the same original source. What are the odds then, that the passage at issue is corrupt? Drawing together all the reasons given, an alternative explanation suggests itself for the section entitled *On Time* in Ps.-Plutarch. This is that Stobaeus’, Ps.-Plutarch’s and Ps.-Galen’s ultimate source contained a gap, and that swallowed up in that gap was the attribution of the Interval Account to the Stoics. Here is what I believe to be the most plausible way of refilling the lacuna:

Πλάτων αἰῶνος εἰκόνα κινητήν, ἥ «τὴν τοῦ κόσμου κίνησιν. Οἱ Στωικοὶ»  
διάστημα τῆς τοῦ κόσμου κινήσεως.<sup>83</sup>

A simple emendation like this one solves all problems at once. We have for Plato two different accounts of time, both of which are otherwise attested and have a clear origin in the *Timaeus*. In particular, we have an account of the family of Motion Accounts for Plato, which is by far the account most frequently provided for Plato in doxographical sources. For the Stoics, we have acquired an account of time that is many times attested elsewhere. We note further that the sequence of the Motion Account and the Interval Account is paralleled in Sextus; and that in Plotinus, *Enn.* 3.7, Simplicius, *in Ph.* 700.16–23 and Plutarch, *Quaest. Plat.* 1007A–B, too, we have those two accounts reported together. Finally, we have an emendation which, though not based on haplography, can be easily explained along the lines of the psychological explanations of haplography: we have a lacuna where the scribe missed out a whole definition, jumping directly to the next one, since its last part was very similar to the missed definition: τῆς τοῦ κόσμου κινήσεως instead of τὴν τοῦ κόσμου κίνησιν.

What about the occurrence of the Interval Account in Alcinous’ *Didaskalikos*, which is written by a Platonist and announces its content to be ‘a presentation of the principal doctrines of Plato’ (Alcinous, *Didask.* ch. 1.1)? The *Didaskalikos* draws from a number of different secondary sources on Plato.<sup>84</sup> Among these was, at least for much of the so-called *Timaeus*

<sup>83</sup> ‘Plato <says that it is> the moving image of eternity or «the motion of the universe. The Stoics say that it is» the interval of the motion of the universe.’

<sup>84</sup> Cf. Göransson 1995: ch. 6.

epitome (chapters 12–23), the underlying source of Stobaeus, Ps.-Plutarch and Ps.-Galen,<sup>85</sup> with some insertions added by Alcinous. These were either taken from other sources or additions of his own.<sup>86</sup> This fact in itself makes it likely that Alcinous' account of time comes, ultimately, from that same source. This point finds support if we look at the context in which Alcinous introduces the Interval Account. Within his *Timaeus* epitome, Alcinous presents a combination of the same two accounts attributed to Plato in Stobaeus and Ps.-Plutarch. The passage differs in that god is explicitly mentioned as creator of time; that the accounts are reversed; that in the now second account the word 'moving' (κινητήν) is missing; and that the account is followed by an explanation of eternity: 'For <god> created time as the interval of the motion of the universe, as an image/copy of eternity, which is a measure of the permanence of the eternal universe.'<sup>87</sup> (*Didask.* ch. 14.6). This account of eternity is absent from the parallel sources, and it is plausible that Alcinous himself reversed the order of the accounts from his source, so that he could add the desired supplemental information about eternity. If this is right, the source of the accounts of time in the *Didaskalikos* is the same as that of Stobaeus and Ps.-Plutarch, and the *Didaskalikos* provides no independent evidence in favour of Plato as the – presumed – author of the Interval Account in Sextus.

It does show, however, how easily the Interval Account may have become a free-floating account, once the umbilical cord that connected it to Stoic physics was cut; and moreover, how easily it can be fitted into Platonic doctrine (along the lines explored earlier in this section) if certain liberties in Plato exegesis are tolerated. The same phenomenon can be observed when one looks at Jewish and Christian philosophers, at the *Suda* lexicon and at the grammarians. Philo, who in *De Aeternitate Mundi* preserved the Stoic origin of the account (see above), presents the same account without any attribution, but simply as true, in *De Opificio Mundi* 26: 'For since time is the interval of the motion of the universe' (ἐπεὶ γὰρ διάστημα τῆς τοῦ κόσμου κινήσεως ἐστὶν ὁ χρόνος). This passage is also part of the excerpt from Philo's *De Opificio Mundi* in Eusebius' *Praeparatio Evangelica*, book II, ch. 24, without Eusebius adding any author of the account. But even in the *De Aeternitate Mundi*, where Philo acknowledges that the Stoics accepted the Interval Account (sections 4 and 54), his

<sup>85</sup> Whether this source is taken to be Aëtius or some Arius Didymus or neither is immaterial here.

<sup>86</sup> Cf. again Göransson 1995: ch. 6, also Dillon 1993: Introduction, section 3.

<sup>87</sup> Καὶ γὰρ τὸν χρόνον ἐποίησε (i.e. god) τῆς κινήσεως τοῦ κόσμου διάστημα, ὡς ἂν εἰκόνα τοῦ αἰῶνος, ὅς ἐστι μέτρον τοῦ αἰωνίου κόσμου τῆς μονῆς.

formulations in sections 52, 53 and 54 would leave his readers guessing who originated the Interval Account, implying by context that it may have been Plato or Platonists, and in any case detaching it from its Stoic origin.<sup>88</sup> The *Suda* has 'Time: the philosophers say that it is incorporeal, being the interval of the motion of the universe.'<sup>89</sup> The mention of the incorporeality of time may be indicative of Stoic origin (see below), but the account is merely attributed to 'the philosophers'. And in a Scholium to Dionysius Thrax, in a passage possibly taken from Stephanus, we find the Interval Account simply as a view one can take: 'But if we define time as the interval of the motion of the universe . . .'<sup>90</sup>

So, for the sake of argument, we may want to leave our considerations regarding Stobaeus, Ps.-Plutarch, Ps.-Galen and Alcinous aside and assume that some Platonist at some point attributed the Interval Account to Plato on the basis of a – somewhat warped – interpretation of the *Timaeus*. It would still not follow that Sextus reports from a source that treats the Interval Account as Platonic. To see this, we need to consider the Sextus passages in their own light. Both in *M* 10 and in *PH* 3 Sextus mentions the Interval Account paired with the Motion Account. Each time Sextus' formulations make it very clear that the two accounts are proposed by different thinkers: some / the others (τινές / οἱ δέ) and the first / the second (τοὺς πρώτους / τοὺς δευτέρους) at *M* 10.170; and some / the others (οἱ μὲν / οἱ δέ) at *PH* 3.136. The fact that the accounts are contrasted with each other is moreover emphasized by the formulation 'the motion *itself* of the universe' or '*just* the motion of the universe' (αὐτὴν τὴν κίνησιν), that is, the motion *itself* as opposed to *an/the interval of* the motion. Now, if the Motion Account is Plato's, and the other account is explicitly attributed to some other people, it

<sup>88</sup> '(52) . . . as the great Plato says, it <i.e. time> is days, and nights, and months, and the periods of years which have shown time, and it is surely impossible that time can exist without the motion of the sun, and the rotary progress of the whole heaven. So that it has been defined very felicitously by those who are in the habit of giving definitions of things, that time is the interval of the motion of the world . . . (53) . . . but it has been shown already that time is an interval of the motion of the world . . . (54) . . . Perhaps some quibbling Stoic will say that time is admitted to be (ἀποδεδοσθαι) an interval of the motion of the world, but not of that world . . .', trans. Yonge. The sequence of these sentences may give any reader the impression that the definition is not of Stoic, but rather of Platonic, origin. However, it is more likely that Philo is here distinguishing between the (later) Stoics that accept the eternity of the world (like Philo) and the (earlier) Stoics that may seem not to, and that are the ones that 'quibble', cf. *Aet. Mund.* 76–8.

<sup>89</sup> Χρόνος· οἱ φιλόσοφοι ἀσώματον αὐτὸν εἶναι φασί, διάστημα ὄντα τῆς τοῦ κόσμου κινήσεως (*Suda* 533).

<sup>90</sup> Εἰ δὲ χρόνον ὀρίζομεν διάστημα τῆς τοῦ κόσμου κινήσεως . . . (*Commentaria in Dionysii Thracis Artem Grammaticam, Scholia Vaticana* 249.7).

is unlikely that this other one is Plato's as well.<sup>91</sup> So we would have to give up the assumption that the Motion Account is Plato's. But, as we have seen, there is positive evidence that it is pre-Stoic in Aristotle's *Physics* passage, and that it was generally accepted as Platonic, plus we have a good possible source in the *Timaeus*. So that move is not advisable. To try to save Platonic authorship by arguing that the Motion Account is Plato's definition of the substance of time, whereas the Interval Account provides his *notion* of time, is ultimately not convincing either. For in M 10 Sextus considers the accounts of time and the accounts of the substance of time separately, and he would thus have had the perfect opportunity to put the Motion Account into his section on the substance of time *rather than* into his section on the notion of time. But he does no such thing. Moreover, the context in Sextus M 10 also points to a Stoic rather than Platonic authorship of the Interval Account. In M 10.169, immediately before the definitions, we read 'For perhaps, with respect to this <i.e. time>, too, both the account given by the natural philosophers who suppose that the universe is eternal, and <the account given> by those <natural philosophers> who say that it came into existence at some time, will perhaps appear to lead to an impasse.'<sup>92</sup> Now, the Stoics take the universe to be ungenerated, and Plato takes it to be created. The two accounts that follow are the only ones in the group of five that do not include ascription to an author. What better way of explaining this than by assuming that the two groups of natural philosophers mentioned were meant to *imply* the originators of these accounts of time, with the Stoics as major representatives of the first group, and Plato as major representative of the second?<sup>93</sup> And one last point: at the end of his presentation of the philosophical views regarding the substance of time, Sextus repeats the Number Account and the Measure Account from M 10.176 and 177.<sup>94</sup> Moving on to the refutation of the views on substance, and after

<sup>91</sup> It could be some Platonists' interpretation of Plato's notion of time, one might venture. But Platonists who interpret Plato are mentioned neither by Sextus, nor in Stobaeus, Ps.-Plutarch or Ps.-Galen.

<sup>92</sup> τάχα γὰρ καὶ περὶ τούτου (i.e. time) ὁ λόγος ἄπορος φανέεται τοῖς τε αἰώνιον ὑποτιθεμένοις εἶναι τὸν κόσμον φυσικοῖς καὶ τοῖς ἀπὸ τινος χρόνου λέγουσιν αὐτὸν συνεστᾶσθαι.

<sup>93</sup> Philosophically, things are a little more complex: Plato's universe is 'created in thought', and although the Stoics do hold that there is no beginning in time at which the world (*qua* the entirety of matter and cause/reason) is generated, they also have a theory according to which successive worlds come into being and are destroyed. But these details may not have worried the doxographers. In Stobaeus, Ps.-Plutarch and Ps.-Galen, immediately after their list of accounts of the substance of time (which consist of the views of the Stoics and Plato only), we find the remark that the majority holds that time is ungenerated whereas Plato held that it was generated (Ps.-Plutarch 1.21 end; Stobaeus, *Ecl.* 1.8.40 W; Ps.-Galen, *Hist. Phil.* 38).

<sup>94</sup> For questions of ascription of these views see below.



saying that an impasse is to be expected here, too, he writes: ‘nonetheless, we must now state against Plato, Aristotle and Strato the natural philosopher what we said against them at the beginning, when we inferred from the notions of time that time is nothing’. Sextus does not actually repeat the arguments from the beginning at this point. Rather, the purpose of this sentence is to tell the reader where to find them. In the relevant passage, *M* 10.170–80, we find arguments against the account attributed (there) to Aristotle; against the one attributed (there) to Strato; and seven arguments against the Motion Account.<sup>95</sup> Thus the only arguments that could have been against Plato’s notion of time are those against the Motion Account, which suggests that the Interval Account, which Sextus unambiguously attributes to different philosophers, would not be Plato’s.

I conclude that we do best in assuming that in Stobaeus, Ps.-Plutarch, Ps.-Galen and Alcinous, as well as in Sextus, the Interval Account ultimately goes back to the Stoics, and that there was a lacuna in the source of Stobaeus, Ps.-Plutarch and Ps.-Galen, as suggested above, or some other textual confusion. However, I do not want to preclude the possibility that Sextus himself may not have been certain to whom to attribute the Interval Account, either since by his time the account may have also developed a ‘free-floating’ authorless existence; or since by his time the accidental change of attribution had been transmitted sufficiently widely that Sextus had encountered it.

### *Archytas and the two Stoic ΔΙΑΣΤΗΜΑ accounts of time*

There is one oddity left regarding the attribution of an Interval Account to the Stoics. Its resolution may further advance our understanding of the ancient doxography on time. Simplicius, in his *Physics* commentary, reports the following in a list of accounts of time. (Archytas is a Neo-Pythagorean of the fifth century BCE or somewhat later.)

Others <say time is> the sphere itself of the heaven, as those report the Pythagoreans to say who perhaps misunderstood Archytas saying that time is the general extension (διάστημα) of the nature of the all, or as some

<sup>95</sup> Sextus mentions διάστημα in the first argument, alongside κίνησις. However, this is diffused immediately by his reducing the διάστημα of the motion to the motion itself: ‘the interval of the cosmic motion ... or more precisely the cosmic motion ...’ (τῆς κοσμικῆς κινήσεως διάστημα ... ἢ ἰδιαιτέρον κοσμικὴ κίνησις ... , *M* 10.170). The subsequent argument, if it is to make any sense, can only be directed against time as the motion of the universe, not its interval. And if it has any force at all, again, it has this only against the account of time as the motion of the universe, not as its interval.

of the Stoics said; the others <said time was> motion without qualification.<sup>96</sup> (Simplicius, *In Ph.* 700.19–22)

The structure of this sentence is grammatically unsatisfactory. In particular, there is something peculiar with the phrase ‘or as some of the Stoics said’. As to its content, the sentence is equally unsatisfactory: in the text as it stands (i) the account of time attributed to both Archytas and to some of the Stoics is nowhere else attributed to the Stoics and (ii) the account of time attributed to the other Stoics, namely that time is motion without qualification, in addition to being rather odd, is also nowhere else attributed to the Stoics, or to any philosopher, and the expression ‘without qualification’ (ἀπλῶς) in it makes little sense. By contrast, for Archytas, Simplicius repeatedly reports the same account of time as διάστημα of the nature of the All (e.g. *in Ph.* 786.13.23; 788.8.16–17) and how the Platonists interpreted it.<sup>97</sup>

Archytas’ account of time differs from the Stoic Interval Account mainly in that it has ‘nature’ instead of ‘motion’ and ‘of the All’ instead of ‘of the universe’ and has ‘general’ before ‘extension’. The second and third disparities are less important, even though for the Stoics the All includes the void, whereas the universe does not. (We find the second also in Plotinus.) However, the use of ‘nature’ instead of ‘motion’ makes philosophically a great difference. Time as extension of the nature of the All need have nothing to do with the extension of the motion of the universe. In the first case, we can think of extension (διάστημα) as a – fourth, say – dimension, that determines or manifests the before and after, or earlier and later. (This reading as a dimension may be supported by Archytas’ specification of the extension as general (καθόλου)). In the second case, we can think of extension (διάστημα) as an interval, where the interval may be (the basis for) a yardstick for measuring the length of periods of time. Thus we have two metaphysically very dissimilar conceptions of time.

All difficulties of the passage can be cleared up with a very straightforward emendation: assume that there is a lacuna after ‘or’ where originally the expression ‘of the motion’ (τῆς κινήσεως) had its place. Then we get for the first group of Stoics the account ‘time is the interval of the *motion* of the All’; this is fine as long as we suppose that the Stoic distinction between the All and the universe was lost on the later thinkers. Basically, we have a version

<sup>96</sup> ... οἱ δὲ τὴν σφαῖραν αὐτὴν τοῦ οὐρανοῦ, ὡς τοὺς Πυθαγορείους ἰστοροῦσι λέγειν οἱ παρακούσαντες ἴσως τοῦ Ἀρχύτου λέγοντος καθόλου τὸν χρόνον διάστημα τῆς τοῦ παντός φύσεως, ἢ ὡς τινες τῶν Στωικῶν ἔλεγον· οἱ δὲ τὴν κίνησιν ἀπλῶς.

<sup>97</sup> In all passages Simplicius expressly draws from Iamblichus and Damascius. For Archytas’ view on time see also the whole passage in Simplicius’ *Corollary on Time*, *in Ph.* 785.13–788.32; and Simplicius, *in Cat.* 348.20–8; 356.28–36.

of the Stoic Interval Account. The suggested emendation gains plausibility also from Simplicius, *in Cat.* 351.18–21. There he writes (taking some historical liberties): ‘The Stoics, adopting <from Archytas> the account <of time> that says it is the general extension (διάστημα) of the nature of the universe changed the account to “the extension/interval (διάστημα) of the movement <i.e. of the universe>”.’

This emendation also removes the second oddity, in providing for the other Stoics the account ‘<the extension (διάστημα)> of motion without qualification’; here ‘without qualification’ (ἀπλῶς) indicates that for these Stoics time was the extension (διάστημα) just of motion, as opposed to of the motion *of the universe*. I will call this account the Extension Account. The distinction between the two kinds of Stoic accounts that we thus obtain is substantiated by several other texts (all quoted above). In particular, Stobaeus attributes the Interval Account to Apollodorus and Chrysippus and the Extension Account to Zeno and Posidonius; and Simplicius, *in Cat.* 350.15–17 writes that Zeno says that time is an extension of motion without qualification (ἀπλῶς), whereas to Chrysippus he ascribes the Interval Account. Thus the emendation also allows us to put names to the two groups of Stoics in the passage from Simplicius’ *Physics* commentary. I have chosen the translation ‘extension’ and the name Extension Account, since at least for Zeno, for whom the account of time is reported without any further detail (Stobaeus, *Ecl.* 1.8.40 W; Simplicius, *in Cat.* 350.15–17), we cannot preclude that what he had in mind is extension of motions in the general sense of a (fourth) dimension. In the case of Posidonius, where we find the additional qualification of time as ‘measure of fastness and slowness’ (Stobaeus, *Ecl.* 1.8.42 W), extension *qua* temporal interval may be more probable. But here is not the place to discuss the complexity of the Stoic theories of time. I just note that the Motion Account and the Interval account are closely connected in that they both link time with the motion of the entire cosmos; by contrast the Extension Account shows some similarity to the Measure Account, in that they both may be concerned with individual motions.

### *The number account*

‘Time is the number of the earlier and later in motion’ (ἀριθμὸν τοῦ ἐν κινήσει προτέρου καὶ ὑστέρου, *PH* 3.136).<sup>98</sup> Is this account Aristotle’s or Plato’s? At *M* 10.176 Sextus reports it as Aristotle’s. At *M* 10.228 he reports

<sup>98</sup> Ἀριστοτέλης δὲ χρόνον ἔφασκεν εἶναι ἀριθμὸν τοῦ ἐν κινήσει πρώτου καὶ ὑστέρου (*M* 10.176).

it as by ‘Plato, or as some <say> Aristotle’ and in *PH* 3.136 as by ‘Aristotle or, as some <say>, Plato’. What are we to make of this?<sup>99</sup> First, what evidence do we have for either attribution?

For Aristotle we have an almost identical definition of time at *Ph.* 4.Π.219b1–2: ‘For time is this: (the) number of motion with regard to the earlier and later’ (τοῦτο γὰρ ἐστὶν ὁ χρόνος, ἀριθμὸς κινήσεως κατὰ τὸ πρότερον καὶ ὕστερον).<sup>100</sup> This account by Aristotle, with ‘with regard to’ (κατὰ) instead of the simple genitive, and the simple genitive ‘of motion’ instead of ‘in motion’ in Sextus, is also reported by Stobaeus (*Ecl.* 1.8 W) as Aristotle’s, and by Plutarch (*Quaest. Plat.* 1007A–B), who, too, clearly attributes it to Aristotle. Simplicius, in his *Categories* commentary, reports Aristotle as saying that time is a number of motion (ὁ μὲν Ἀριστοτέλης ἀριθμὸν κινήσεως εἶναι φησι τὸν χρόνον, in *Cat.* 350.14–150; Ἀριστοτέλης ἀριθμὸν εἰπὼν <i.e. κινήσεως>, in *Cat.* 346.15–16), and that, among other things, number of motion is the substance of time (Ὁ δὲ Ἀριστοτέλης . . . τὴν οὐσίαν αὐτοῦ . . . ὥς ἐπ’ ἀριθμὸν κινήσεως . . ., in *Cat.* 344.12–15).<sup>101</sup> There is no direct parallel to the Number Account in Plato’s work, nor is it ever attributed to him in the lists of the doxographers. The odds thus seem to be in favour of Aristotle as the author of this account. Should we assume an error in the source from which Sextus draws? Such an assumption may seem reasonable.

However, a look at Simplicius, in *Ph.* 702.25–34 provides a better explanation. There we learn that Alexander of Aphrodisias ‘refuses to accept the view of those who say that Plato, in agreement with Aristotle, holds that time is a/the number of motion, when he calls it “an eternal image proceeding numerically”. The reference to Plato is *Ti.* 37d: ‘and at the same time when he structured the heaven, he made an eternal image/copy that moves in accordance with number of the eternity that remains in the unity, *this* which we call time’ (καὶ διακοσμῶν ἅμα οὐρανὸν ποιεῖ μένοντος αἰῶνος ἐν ἐνὶ κατ’ ἀριθμὸν ἰοῦσαν αἰώνιον εἰκόνα, τοῦτον δὲ χρόνον ὠνομάκαμεν). Those thinkers, we can surmise, may have based their view on the grammatical ambiguity of what ‘this’ anaphorically denotes (‘image’ or ‘number’), choosing ‘number’ rather than ‘image’, even though the latter is what the context

<sup>99</sup> The report at *M* 10.176 also differs from the other two in that it has ‘first’ (πρώτου) instead of ‘earlier’ (προτέρου). Aristotle and all other doxographical sources have προτέρου, so if anything, the reports that introduce Plato as a possible alternative author seem more accurate.

<sup>100</sup> For Aristotle on time as number see Coope 2005: part III.5.

<sup>101</sup> For an attribution to Aristotle speaks further of the fact that Strato is reported to criticize this account, *qua* being Aristotle’s account, in Simplicius’ *Corollary on Time*, in *Ph.* 788–9, and, it seems, in Sextus’ *M* 10.176–7, too.

dictates (see also above the section entitled ‘The motion account’). Thus Alexander seems to have rightly pointed out that Plato ‘does not say that time is a/the number of motion, but a numbered, i.e. ordered, motion’. Still, for our purposes, the passage is valuable. It provides us with the information that there were, before Alexander, some people who interpreted *Tim.* 37d as providing a Platonic definition of time according to which time is the number of motion.<sup>102</sup> Hence it makes sense to conclude that when Sextus writes ‘or as some <say>, Plato’ he takes from his source a reference to those people Alexander reports about. No need to assume a textual error.

### *Explication of the number account*

‘Time is some co-recollection of the first and later in motion’ (συμνημόνευσις τις τοῦ ἐν κινήσει πρώτου καὶ ὑστέρου, *M* 10.176): strangely, Sextus seems to offer this as a paraphrase of the Number Account where he attributes it to Aristotle alone (*M* 10.176). There is no way that ‘co-recollection’ is even faintly a synonym for ‘number’. A different explanation is required. We find the expression συμνημόνευσις in Sextus also at *PH* 3.108 in the context of the discussion of change (μεταβολή), where the co-recollection is also of the earlier and later stage of a change.<sup>103</sup> The origin of this alternative account is most probably to be found in Aristotle, *Ph.* 4.11.219a22–b2, where Aristotle writes that we say that time has passed when we have a perception of the before and after in change. Where in the transmission and discussion of Aristotle’s theory of time we find the shift from the formulation in terms of perception to that in terms of co-recollection, I do not know. It is certainly in line with Aristotle’s own theory of recollection, as set out in his *On Memory and Recollection*, that we need to recollect at least the earlier state of the changing thing.

### *The measure account*

Time is ‘a/the measure of all motion and rest’ (μέτρον πάσης κινήσεως καὶ μονῆς, *PH* 3.137; *M* 10.177). Is this account Aristotle’s or Strato’s? At

<sup>102</sup> This view may have still been held by some in Sextus’ time. For we find Simplicius, in *Ph.* 703.21–3, defending the view that Plato called time ‘the measure of motion’ (which Simplicius here seems to take to pick up the ascription to Plato of the ‘number of motion’ account from the passage quoted in the main text), referring to Plato, *Ti.* 39d.

<sup>103</sup> ἡ δὲ μεταβολὴ συμνημόνευσιν ἔχειν δοκεῖ τοῦ τε ἐξ οὗ μεταβάλλει καὶ εἰς ὃ μεταβάλλειν λέγεται, *PH* 3.108; cf. *M* 10.64. (The term is also used in *M* 1.129, 7.279, and multiple times in *M* 9.353–6). See also Ierodiakonou in this volume.

PH 3.137 and at M 10.228 Sextus reports the account as being ‘Strato’s, or as some (others) say, Aristotle’s’. In M 10.177 it is attributed only and unambiguously to Strato, reported after a definition attributed to Aristotle and, what is more, presented as the result of some specific criticism by Strato of Aristotle’s number account. What is our external evidence for this case?

(i) There is some doxographical evidence for both Strato and Aristotle: Stobaeus, *Ecl.* 1.8.40 W reports an almost identical definition as Strato’s: time as ‘the quantity in motion and rest’ (Στράτων τῶν<sup>104</sup> ἐν κινήσει καὶ ἡρεμίᾳ ποσόν). Similarly Iamblichus, as reported in Simplicius, *in Cat.* 346.14–15, has: ‘Strato, saying that time is the quantity of motion, suggested that it is something inseparable from motion.’<sup>105</sup> On the other hand Plutarch, at *Quaest. Plat.* 8.4.1007A–B, reports for Aristotle that time is the ‘measure and number of motion with respect to earlier and later’: (μέτρον . . . καὶ ἀριθμὸν . . .), and Simplicius reports ‘measure of motion’ (μέτρον <i.e. κινήσεως>) as one of the options for Aristotle’s view of the substance of time (Simplicius, *in Cat.* 344.12–14). Thus the term ‘measure’ is part of the doxography for Aristotle’s account of time, whereas a variation of the Measure Account which has ‘quantity’ instead of ‘measure’ is doxographically confirmed for Strato.<sup>106</sup>

(ii) There also is some more direct evidence for both Strato and Aristotle: Strato is Strato of Lampsacus, also known as Strato the natural philosopher (φυσικός), on account of his works on physics and cosmology. This is how Sextus refers to him. Strato was head of the Peripatetic school after Theophrastus until his death (c. 269 BCE). He is known for having been an original thinker and respected philosopher who was not afraid of introducing improvements to Aristotle’s theories where he thought Aristotle had gone wrong. The most famous example is his rejection of Aristotle’s theory

<sup>104</sup> What to do with the τῶν? A scribal error (diplography)? Short for τῶν ὄντων? Or picking up ‘stars’ from the previous account? Given the parallel texts, I lean towards the first.

<sup>105</sup> Στράτων μὲν γὰρ τὸ ποσὸν τῆς κινήσεως εἰπὼν τὸν χρόνον ἀχώριστον τι αὐτὸν ὑπέθετο τῆς κινήσεως. The inseparability is contrasted with Aristotle’s number account, which according to Simplicius suggests separability from motion (Simplicius, *in Cat.* 346.14–17). Whether ‘measure’ indicates inseparability or not, we are not told.

<sup>106</sup> I have not found μέτρον reported for Strato instead of ποσόν in sources other than Sextus. But Plotinus utilizes Strato’s argument against Aristotle’s number account ‘Let us inquire in what way <time> is the number of motion, or measure – for it is better thus <i.e. measure rather than number>, since <motion> is continuous’ (Ἀριθμὸς δὲ κινήσεως ἢ μέτρον – βέλτιον γὰρ οὕτω συνεχοῦς οὗσης – πῶς, σκεπτόμεν, Plotinus 7.9), and in that context Plotinus uses μέτρον.

of place, and subsequent positing of an alternative that included the existence of void.<sup>107</sup> Thus the report in *M* 10.177 that Strato's account is the result of his criticizing Aristotle's definition of time is plausible. Moreover, we know that Strato wrote a book on time, of which several fragments have survived in Simplicius and Sextus. So we have no reason to doubt that Sextus' attribution of the account to Strato is accurate, and that the argument(s) against Aristotle's definition go back to Strato, perhaps by way of a doxographical source. In fact, we have in Simplicius' *Corollaries on Time* confirmation that Strato argued against Aristotle, saying: 'why should time be the number of the earlier and later in motion rather than in rest? For there is equally an earlier and later in rest' (Simplicius, *In Ph.* 789.16–18). What about Aristotle? Did he ever explain time in the terms of the Measure Account? In fact, he did. At *Ph.* 4.12.221b7 Aristotle writes: 'But since time is the measure of motion, it will also be the measure of rest' (ἐπεὶ δ' ἔστιν ὁ χρόνος μέτρον κινήσεως, ἔσται καὶ ἡρεμίας μέτρον), and, after arguing why this is so, he ends the section with 'time is the measure of motion and rest' (ὁ δὲ χρόνος κινήσεως καὶ ἡρεμίας μέτρον, *Ph.* 221b22–3).<sup>108</sup> This account is discussed by Simplicius in his *Physics* commentary (*in Ph.* 742–6),<sup>109</sup> where we also learn that Alexander and Themistius discussed it. The fact that Aristotle has ἡρεμία instead of μονή would have been a negligible point for ancient interpreters and doxographers.<sup>110</sup> And although Aristotle does not present this account as a definition, the phrasing at *Ph.* 221b22–3 lends itself to being added to a doxographical list of accounts. One possible scenario that would explain how we came to the double attribution in Sextus is that a Peripatetic contemporary with, or younger than, Strato (or indeed Strato himself) pointed out that Aristotle supported the definition defended by Strato, and that this philosopher adduced the *Physics* passage mentioned. In any event, Sextus' doxographical source is vindicated once more.

As the previous paragraphs have repeatedly hinted, the Number Account ('the number of the earlier and later in motion') and the Measure Account

<sup>107</sup> More precisely, of something like micro-voids within substances, cf. Algra 1995: ch. 2. Whether in all such cases Strato actually thought of himself as providing alternative theories, or rather as supplementing Aristotle's theories is a question that cannot be discussed at this point. (For the surviving evidence see Gottschalk 1964.) Here it must suffice to note that in antiquity he was repeatedly interpreted as providing alternatives to Aristotle.

<sup>108</sup> For Aristotle on time as measure see Coope 2005: part III.6.

<sup>109</sup> Cf. also Simplicius, *in Cat.* 344.12–15.

<sup>110</sup> Aristotle himself contrasts μονή and κίνησις e.g. at *Ph.* 205a17.

(‘the measure of motion and rest’) seem closely related. They both state a relation between time and motion as such, as opposed to the motion of the universe of the first two of Sextus’ accounts.<sup>111</sup> And they both connect the motion with a broadly mathematical term. The facts (i) that ‘measure’ (μέτρον) is used twice as precisification of ‘number’ in a report of the Number Account, and (ii) that ‘quantity’ (ποσόν), which is arguably closer to ‘number’ than to ‘measure’, occurs instead of ‘measure’ in several reports of the Measure Account only underline this – apparent – close relation. Either account lends itself to more than one interpretation, but I will refrain from investigating the philosophical ramifications they open up. Still, it is worth pointing out that, from a philosophical perspective, the accounts can lead to diametrically opposed theories of time. Thus, the Measure Account, *as explicated by Strato according to Sextus* M 10.178, implies that time can exist independently of motion, and thus absolutism with respect to time. By contrast, the Number Account, as introduced by Aristotle, makes time dependent on the existence of motion and implies reductionism or relationism with respect to time. And in his explanation of time as measure of motion Aristotle also seems to base the existence of time on that of motion rather than vice versa.<sup>112</sup>

### *The substance of time: corporeal versus incorporeal*

In doxographical texts, the sequence of a list of definitions of a philosophical item followed by a list of accounts of its substance (οὐσία) is a commonplace (see above the section entitled ‘Comparing M 10 and PH 3’), and Sextus himself makes use of this distinction elsewhere.<sup>113</sup> There is, however, an air of oddity about the particular way in which Sextus introduces the substance of time at M 10.215–47 and PH 3.138. Both times he announces a division of the substance of time as being either corporeal or incorporeal.<sup>114</sup> This distinction appears to be unique to Sextus, just as is the presentation of Heraclitus, or Aenesidemus, as a philosopher for whom time is corporeal. And in PH 3 this distinction and an assumption about its exhaustiveness (PH 3.140) are all we get about the substance of time. For details we need to consult the M 10 passage.

<sup>111</sup> They share this feature with the second Stoic account (the Extension Account), which defined time as interval of motion (unqualified).

<sup>112</sup> Cf. e.g. Coope 2005: 104–9. <sup>113</sup> PH 3.2–3 (god); PH 2.58 (intellect); PH 2.81; M 7.38 (truth).

<sup>114</sup> κατ’ οὐσίαν τε οἱ μὲν σῶμα αὐτὸν ἔφασαν εἶναι, ὡς οἱ περὶ τὸν Αἰνισίδημον . . . οἱ δὲ ἀσώματον (PH 3.138). We find elsewhere in Sextus classifications of the dogmatists’ views on a subject based on whether they regarded it as corporeal or incorporeal; e.g. at M 9.359 for the first principles.



Sadly, the *M* 10 passage is a mess. We obtain five alleged accounts of the substance of time, followed by their criticism, which consists in a referral to earlier passages for the last two, and new criticism of the first three. Of the five accounts, the first (Heraclitus, the substance of time is body) and second (Stoics, incorporeal and thought of as something in itself) are new. The third (Epicurus) is identical with the account of time given for Epicurus in *PH* 3. The fourth and fifth are identical with the accounts given for Aristotle and Strato earlier in *M* 10, and also with the accounts given for Aristotle or Plato and Strato or Aristotle in *PH* 3. The Stoic account does not match the Stoic account of the substance of time as motion from the doxographical tradition.<sup>115</sup> The only other explicit account of the substance of time in Stobaeus and Ps.-Plutarch, that is, the one for Plato (motion of the heaven),<sup>116</sup> has no parallel in Sextus. Sextus' accounts for Epicurus, Aristotle and Strato are reported as accounts of time itself in the doxographical tradition.<sup>117</sup> Rather than attempting a detailed discussion of all the many possibilities in which this muddle could have been brought about, I offer one general explanation of how and how much Sextus may be indebted to doxographical material. Other explanations are possible.

Sextus' distinction of views of the substance of time as corporeal and incorporeal is his own. It is found nowhere else.

Sextus may have had doxographical material like that in Diogenes Laertius 7.141: 'moreover, time, too, is incorporeal, being the interval of the motion of the universe' (ἐτι δὲ καὶ τὸν χρόνον ἀσώματον, διάστημα ὄντα τῆς τοῦ κόσμου κινήσεως), together with doxographical material that lists the Stoic incorporeals.<sup>118</sup>

He took from Aenesidemus his report about Heraclitus.

He took from Demetrius the distinction between two ways in which time can be incorporeal (thought of as something in itself or as a property of something else) as well as the exposition of Epicurus' position on time. Demetrius explained the Epicurean position by contrasting it with the Stoic one, and this is where Sextus found his formulations.<sup>119</sup>

<sup>115</sup> Stobaeus: Οἱ Στωικοὶ χρόνου οὐσίαν αὐτὴν τὴν κίνησιν. Ps.-Plutarch: Οἱ πλείους τῶν Στωικῶν αὐτὴν τὴν κίνησιν. (The next clause in both authors is οἱ <μέν> πλείους ἀγένητον τὸν χρόνον (no μέν in Stobaeus). The οἱ πλείους may have interfered with the previous sentence and may explain the discrepancy; though whether it crept into Ps.-Plutarch or dropped out of Stobaeus, I cannot say.)

<sup>116</sup> [Πλάτων] οὐσίαν χρόνου τὴν τοῦ οὐρανοῦ κίνησιν. (Stobaeus, *Ecl.* 1.8.45 W, Ps.-Plutarch, *Epit.* 1.22, *DG* 318).

<sup>117</sup> E.g. *PH* 3.137; Simplicius, in *Cat.* 346.14–15; Stobaeus, *Ecl.* 1.8.40 W (*DG* 318; 449) together with what was said in the section on the Internal Account above.

<sup>118</sup> Such as he seems to use at *M* 10.218; cf. also Plut. *Comm. Not.* 1074d.

<sup>119</sup> In his discussion of place, too, Sextus seems to use in *M* 10 a passage which he did not use in the parallel *PH* 3 passage, and which presents a more elaborate view. See Algra, in this volume.

Becoming aware that there were still three positions on the substance of time missing, if these were to match those on time *simpliciter*, Sextus recycles two of the latter, which among them use attributions to Plato, Aristotle and Strato, and then refers back to his refutations of Plato's, Aristotle's and Strato's accounts of time, to serve as refutations of their (identical) accounts of the *substance* of time, too.

Sextus then adds arguments against the view of the Heracliteans, providing more information on their view in the course of doing so. This argumentation may at least in part stem from Aenesidemus, the very text from which Sextus took the account of Heraclitus.

Finally, he adds arguments against the Stoic and the Epicurean views. Both arguments have nothing specifically to do with time, follow Pyrrhonian formulae and are not very sophisticated. Thus they square well with the way in which Sextus argues.

To sum up this second main section of the chapter, that is, the one that deals with the doxographical material on time and its substance, we can say that there survived parallel doxographical sources for all the accounts in Sextus' passages on time, with the exception of the corporeal/incorporeal distinction, which appears to be Sextus' own; that for all unattributed accounts in Sextus a convincing attribution is possible; and that for all accounts where Sextus mentions two possible authors, doxographical evidence for the authorship of either author exists. The fact that, as a result, for the same philosopher more than one possible view is reported does not seem to faze Sextus. Accuracy in reporting, including reporting uncertainties, has precedence over stating one view per author.<sup>120</sup> Such uncertainties in ascription themselves seem never to come under sceptical fire: Sextus' scepticism is concerned with views (δόγματα), not ascription of views. Through the transmission process as well as by Sextus' attempt to force his own structural scheme on the doxographical material, some of the material reported in the sections on time is somewhat jumbled. But once allowances are made for both factors, Sextus emerges as a reliable source for the doxographical tradition.

<sup>120</sup> Similarly in M 9.360, where Sextus seems to have two conflicting sources about Heraclitus' view on the first principles (fire or air): he simply reports that some say the one, some the other.

## *Appendix I: Structural overview of M 10.169–247*

- 169: Motion presupposes time (transition from section on motion to section on time)
- 170–88: Definitions (from the conception, ἐπίνοια (188) ἔννοια (215)) of time and their criticism:
  - 170: The Interval and Motion Accounts of time (no ascription)
    - 170–5: Arguments against these accounts
    - 176: Aristotle, definition of time; argument against the definition
    - 177: Strato, definition of time
    - 178–80: Arguments against Strato's definition
    - 181: Democritus' and Epicurus' definition of time
    - 182–8: Criticism of this definition
- 188–214: Direct arguments against time:
  - 189–91: Neither limited nor unlimited
  - 192: Composed of non-existents, hence non-existent
  - 193–7: Neither divisible nor indivisible
  - 197–202: Arguments from the tripartition of time: past, present, future
  - 203–14: Neither imperishable and ingenerable nor perishable and generable, nor partly one or the other
- 215–47: Arguments against time, with respect to the substance (οὐσία) of time: corporeal vs incorporeal; self-existent incorporeal vs incorporeal property:
  - 216–17: Aenesidemus/Heraclitus: time as corporeal
  - 218: Stoics: time as incorporeal and self-existent
  - 219–27: Epicurus (acc. to Demetrius): time as incorporeal property
  - 228–9: Aristotle, Plato, Strato
  - 230–3: Criticism of the Heracliteans
  - 234–7: Criticism of the Stoic position
  - 238–47: Criticism of the Epicurean position
- 247: Concluding sentence and transition to section on numbers.

## *Appendix II: Structural overview of PH 3.135–51*

- 135: Concluding section on place: juxtaposition of self-evidence and argument, leading to suspension of judgment
- 136: Juxtaposition of the appearances (φαινόμενα) (pro existence of time) and what is said (λεγόμενα) (against existence of time)
- 136–8: List of positions on time by the dogmatists from a doxographic source:
  - 136: The Interval Account of time (no ascription)
  - 136: The Motion Account of time (no ascription)
  - 136: The Number/Magnitude Account of time (ascribed to Aristotle or Plato)
  - 137: The Measure Account of time (ascribed to Strato or Aristotle)
  - 137: The Accident Account of time (ascribed to Epicurus)
  - 138: Corporeal substance of time (ascribed to Aenesidemus)
  - 138: Incorporeal substance of time (no ascription)
- 138–40: Wholesale argument against time:
  - 138: Dogmatic views conflict, hence cannot all be true.
  - 138: The dogmatists don't allow that they are all false.
  - 139: If both corporeality and incorporeality of time are false, non-existence of time follows.
  - 139–40: Because of the equipollent dispute plus the impasse regarding the criterion and proof we cannot say which views are true, which false. Hence nothing can be stated firmly about time.
- 140: Argument from motion and rest: if time cannot subsist without motion or rest, and motion and rest are done away with, then so is time.
- 140–50: Arguments against the existence of time (propounded by 'some')
  - 141: Time is neither limited nor unlimited, hence non-existent.
  - 143: Time is neither divisible nor indivisible, hence non-existent.
  - 144: Time is tripartite, consisting of past, present, future; past and future don't exist, the present is neither divisible nor indivisible, hence doesn't exist either. Hence time as a whole does not exist.
  - 147: Time is neither both generable and perishable nor neither, hence non-existent.
- 151: Transition to section on numbers: time presupposes number.

*Number: M 10.248–309**Tad Brennan***Introduction**

In this section Sextus addresses a collection of dogmatic theories, attributed by him to Pythagoreans, about the role of numbers in physical science. What provokes his antithetical animus is the Pythagorean claim – repeated at the beginning and the end of Sextus’ exposition of their views (249, 284) – that numbers ‘have such a great power that they are considered to be the principles (*archai*) and elements (*stoicheia*) of the whole universe’. On this view, numbers are the basis of everything, not only of geometry and harmonics, but of physical bodies, the four elements, souls, the earth, the heavens and all things therein: everything is dependent on and derived from numbers.

The passage as a whole – both the dogmatic theories and Sextus’ response – is closely paralleled by two other parts of the Sextan corpus: the small treatise entitled *Against the Arithmeticians* (*M* 4.1–34) and a section of the *Outlines of Pyrrhonism* (*PH* 3.151–67). Each of these parallel treatments is roughly half the length of the *M* 10 discussion, but generally similar in content, language and structure.<sup>1</sup> There is also a brief passage in *M* 7.93–109 which contains a discussion of related Pythagorean views; it shows some overlap of content but few structural parallels.

Sextus begins the discussion in our section of *M* 10 by linking this section on number to the previous section on time, noting that the measurement of time requires the enumeration of temporal units (days, hours, etc.) and thus presupposes number (10.248). This initial rationale

I dedicate this chapter to the memory of Michael Frede, my former teacher, whom I shall always be grateful to have known. I am grateful as well to Katerina Ierodiakonou and Keimpe Algra for their help in editing this chapter, and to the organizers of the 2007 Symposium Hellenisticum for their invitation to me. Every participant at the Symposium deserves my thanks; I do not express it distributively for reasons of space. And as always, my deepest thanks go to Liz Karns.

<sup>1</sup> In very rough terms, the passage from *M* 10 is about 3,500 words, the passage from *M* 4 around 2,000, and the passage from *PH* 3 about 1,200 words.

for the introduction of the topic of numbers, along with the transmitted title of our section – ‘Concerning Number’ (*Peri Arithmou*) – might encourage the thought that Sextus is going to examine numbers in general, as well as counting and enumeration. There are many things that you might expect a treatise ‘On Number’ to discuss: what kind of numbers there are, how we acquired the concept of numbers, whether numbers exist and in what their existence consists, and so on. But none of these are discussed by Sextus: the dogmatic view that he opposes is that numbers are the principles of the universe.

This is a good reminder of the fact that our section is part of a larger treatise ‘Against the Physicists’; his central target here is the employment of numbers in physical theories. And in light of the extremely elevated status that Pythagorean theories assign to number, one can sympathize with the claim Sextus makes in the parallel passage at *PH* 3 that it is the extravagance and over-ambition of such theories, their *periergia* (*PH* 3.151), that provokes his attack. The sceptic is perfectly happy, he tells us there, to accept ordinary discussions of number and counting, and to say that numbers exist in the ordinary way. But it is no part of the ordinary customs of counting to think that everything else in the universe is derived from and based on numbers.<sup>2</sup>

It is noteworthy, however, that the approach Sextus takes to number in explicitly physical contexts – such as here in *M* 10 and the physical portion of *PH* 3 – is repeated in *M* 4, where no larger context requires him to treat numbers *qua* physical *archai* (rather than *qua* units for enumeration, calculation, abstractions, etc.). If its placement in the series *M* 1–6 dictated any approach, we would expect it to focus on the technicity<sup>3</sup> of mathematics, that is, its status as a *technē* or *mathēma*, since *M* 1–6 are in general attacks on grammar, rhetoric, geometry, and such like, considered as arts or sciences. And in the first paragraph of *M* 4 Sextus does tell us that his ultimate target is the *technē* of number. But in the second paragraph he reverts immediately to the physical approach of *M* 10 and *PH* 3, repeating the complaint that the Pythagoreans attribute such a great power to number that they make it govern the nature (*phusis*) of the universe.<sup>4</sup> And his subsequent attacks in *M* 4, which is not advertised as a treatise devoted to physics, are exactly the ones he uses against number in the

<sup>2</sup> My thanks to a referee for insisting on the relevance of the treatise’s overall aims.

<sup>3</sup> In the useful coinage of David Blank; see Blank 1998.

<sup>4</sup> Brisson 2006 notes this point, suggesting that a more accurate title for *M* 4 would be ‘Against those who say that numbers are the *archai* of all things’.

physical treatises. Thus the fact that Sextus attacks numbers as physical *archai* in *M* 10 may be only partly a function of the larger contexts, and partly a function of other factors, for instance, the stock of anti-arithmetic arguments that Sextus has inherited.<sup>5</sup>

### A brief overview of the contents of *M* 10.248–309

Sextus' discussion of number in *M* 10 divides fairly cleanly into two parts: he first presents the dogmatic view that numbers are the *archai* of all things, and then refutes that view. The presentation of the dogmatic thesis occupies sections 248–84, and the refutation occupies sections 285–309. The proportions here are noteworthy: thirty-seven sections are devoted to the dogmatic exposition, and only twenty-five to the sceptical refutation. It is fairly unusual for Sextus to spend more time surveying the dogmatic views than he spends refuting them, and in particular these proportions are reversed in the two parallel passages. *M* 4 gives us nine pages of exposition followed by twenty-five pages of refutation, while *PH* 3 gives us six pages of exposition followed by eleven pages of refutation.

I understand the structure of the section as follows (see the outline printed at the end of this chapter). In the dogmatic section Sextus gives us two long arguments, attributed to 'the Pythagoreans', each of which concludes that numbers are the *archai* of all things; I mark the first ('Criterial Argument') from 249 to 262, the second ('Trichotomy Argument') from 263 to 277. The dogmatic section ends with an alternative construction of the universe from numbers ('The flux method', 281–2), and some suggestions that the Pythagorean sources disagree about whether all things come from a single *archē* (the Monad) or from two coordinate *archai* (the Monad and Indefinite Dyad).

Sextus' sceptical response, announced at 284, contains five separate arguments. The first argument ('Numbers and things numbered', 284–90)

<sup>5</sup> We glimpse the sort of non-physical attack that could be launched against numbers towards the end of the passage from *M* 7.93–109 mentioned above. Here the larger context of the treatise is a general consideration of dogmatic epistemology, and this is reflected to some extent in the approach that Sextus takes to number. In 105 Sextus says that both art and life judge all things by means of criteria, which are measures of number, so that if number is abolished all of the criteria will be abolished with it, such as the cubit, bushel and talent. So in an epistemological context, Sextus does threaten to attack numbers in their epistemological role as criteria. However, the previous exposition of the Pythagorean view (93–104) has generally featured numbers in their physical and cosmological role, not in any epistemological role. And after 105 Sextus does not make good on his promise to abolish numbers (he turns from Pythagoreans to Xenophanes and Parmenides). So it remains unclear whether he had a stock of anti-numerical arguments that would have addressed numbers in their epistemological role (and other roles) as opposed to their role as physical *archai*.

attacks the dogmatic view that numbers are distinct from particular countable things. The second sceptical argument ('Against genus'), stretching from 291 to 292, is directed against the Pythagorean treatment of the One as a genus. In 293–8 ('Against participation') the third argument denies the possibility of participation (*metechein*) which is presupposed by the treatment of the One as a genus.

In the fourth argument ('Human apprehension', 299–307) Sextus claims that number cannot be apprehended by human beings, either by sense (300–1) or by intellect (302–7). The second half of this argument is noteworthy for being built around a long verbatim quotation from the *Phaedo*.

The fifth and last argument ('Addition and subtraction') runs from 308 to 309 and argues that there is no number, because it cannot be constructed by either addition or subtraction. At the end of 309 Sextus declares '*toinun ouk esti arithmos*': therefore there is no number; number does not exist. That verdict stands as the conclusion of this fifth argument, and of my passage as a whole.

So that is a brief overview: two dogmatic arguments that numbers are the *archai* of all things, plus some explorations of how they function as *archai*, followed by five sceptical arguments that numbers do not exist, or cannot be apprehended, or are somehow embroiled in difficulties and aporiai.

### The dogmatists and Sextus' sources

This whole section of *M* 10 and the parallel passages in *M* 4, *M* 7 and *PH* 3 have played an important role in critical reconstructions of the history of Pythagoreanism. In *M* 10 Sextus refers to his opponents as Pythagoreans,<sup>6</sup> or as 'Italian Physicists' (284), or he even attributes their views simply to Pythagoras (261). In the parallel passage from *M* 4.2 he refers to his opponents as 'Pythagorean professors'.<sup>7</sup> They are 'Pythagoreans' again in

<sup>6</sup> Cf. *M* 10.248, 250, 255, 262, 270, 282, 288, 291. With some slight variations, e.g. 'those around P.'; 'the sons of P.'; 'the Pythagorean physicists', etc.

<sup>7</sup> The phrase used at the beginning of *M* 4, '*hoi apo tôn mathēmatōn Puthagorikoi*' might bring to mind the distinction between 'akousmatic' and 'mathematic' Pythagoreans. (Cf. Porphyry, *VP* 37 and Iamblichus, *VP* 18; *Comm. Math.* 76; the earliest witness for the distinction seems to be Gellius in 1.9.4. On the whole question of the akousmatic and mathematic sects, see Burkert 1972: 192–208.) Both Brisson 2006 and Bury (in his translation of *M* 4.2) seem to understand Sextus' use of '*mathēmata*' here as a verbal echo of the Pythagorean label. And it may be that the group of Pythagoreans that Sextus targets here is extensionally the same as the group that Pythagoreans referred to as 'the mathematics'. However, I do not believe that the word itself is an echo of Pythagorean usage. Sextus uses the phrase '*hoi apo tôn mathēmatōn*' three times in the general introduction to *M* 1 (*M* 1.1; 1.35; 1.40) to refer to all of the professors that he intends to attack, and to



*M* 4.9. But in *M* 4.11–14, when he is attacking the separation argument attributed to the Pythagoreans in *M* 10.285–8, he here attributes the argument to ‘Plato, characterizing the conception of the One rather Pythagorically’ (*M* 4.11) and ‘those around Plato’ (*M* 4.14). In *PH* 3.151–67 he always refers to his opponents as ‘Pythagoreans’ (152, 157, 163) and attributes the separation argument to the Pythagoreans, not to Plato or those around Plato.

Burkert (1972) and Isnardi Parente (1992) have discussed the references to the Pythagoreans in this passage and offered proposals about their identity. The two agree that the bulk of the material is derived from sources in the Early Academy, especially Xenocrates. They also agree that one passage (281–2 on the flux method) is derived from Archytas, who was an older contemporary of Plato’s. I will express some doubts below about their grounds for each of these identifications, but they may be correct; the state of our evidence simply precludes any confident pronouncements about the original sources of the doctrine.

About the intermediate sources that Sextus used it is equally hard to speculate. The passage in *M* 7.93–109 begins with an explicit attribution to ‘Posidonius, when he is interpreting Plato’s *Timaetus*’. Burkert refers to the ‘bitterly debated question’ whether this means that Posidonius wrote a commentary on the *Timaetus* or not, and he also refers to controversy about how much of the Pythagorean material in this passage should be attributed to Posidonius.<sup>8</sup> The overlap in content between the *M* 7 passage and our own passage makes it very tempting to think they share a source.<sup>9</sup> Positing

refer to the kinds of figures that Epicurus and Pyrrho before him attacked, i.e. any proponents of *paideia* or specialized learning, including grammarians, rhetoricians, and so on. At *M* 1.1 Bury translates ‘*hoi apo tōn mathēmatōn*’ as ‘Professors of Arts and Sciences’, correctly in my view. At *M* 4.2 he translates ‘*hoi apo tōn mathēmatōn Puthagorikoi*’, incorrectly in my view, as ‘the mathematical Pythagoreans’. It would be better, I think, to translate as e.g. ‘the Pythagorean Professors’, in order to show that this usage is just an elaboration of the general reference to ‘professors’ as the targets of *M* 1–6. The larger issue at stake is that I do not think that Sextus’ language here can be used as evidence for the Pythagorean distinction between mathematics and akousmatic sects, or as evidence for how that distinction was lexicalized by the Pythagoreans.

<sup>8</sup> Burkert 1972: 54. That Posidonius was in some sense commenting on the *Timaetus* is stated explicitly by Sextus, but not that he wrote a free-standing commentary devoted to that dialogue. Posidonius might have offered some interpretative remarks on the *Timaetus* in the context of a commentary on some other work, or in some systematic treatise (e.g. a work on cosmology).

<sup>9</sup> *M* 7.92–109 contains many parallels with the three Sextan treatments of number, including the extended discussion of harmonic ratios, and the double construction of lines, planes and solids from points, first by the method of flux (7.99) and then by the horos-method (7.100). Plutarch, *De Animae Procreatione* 1023B, says that those around Posidonius say that ‘the soul is an idea of what has all dimensions, composed according to number that contains harmony’ (*tēn psukhēn idean tou pantēi diastatou kat’ arithmon sunestōsan harmonian periechonta*). The combination of dimensions, numerical composition and harmonies looks very reminiscent of how the cosmos and souls are

a relatively late source (such as Posidonius) for our *M* 10 passage would help to accommodate the references to atoms (252, 254) as well as a mention of Epicurus by name (257), and the references to ‘*onkoi*’ (252), which are usually associated with Asclepiades of Bithynia, the contemporary of Posidonius. But Sextus is also capable of combining sources or introducing references to later figures into earlier discussions.

### The first dogmatic argument that numbers are *archai*: the Criterial Argument

#### *An overview of the first dogmatic argument*

In this section (249–62) the dogmatists start from a series of abstract criteria for what any *archē* must be like, and then argue by elimination that only numbers can fulfil those desiderata.

So in 250–1 they argue that an *archē*, whatever it is, must be something non-evident to the senses.

For (1) no *archē* can be composed of other things;  
but (2) every evident thing must be composed of non-evident things; so no  
evident thing can be an *archē*.

The first premise seems plausible as a claim about the conceptual structure of the term ‘*archē*’; the second seems entirely unargued. It contains two claims: that every evident thing is composed (i.e. is a non-simple), and that its components are non-evident things.<sup>10</sup> The dogmatist is not in a position to make such a universal claim about the composition of all evident things, for two reasons. First, obviously, no dogmatist had shown that the components of every evident thing are non-evident things. Second, if there were an *archē* that was an evident thing, then it would be some sort of extended, evident simple, and it would have no components at all (by the first premise). But then a fortiori it would have no evident components. And it is not clear how this situation could be distinguished from its having non-evident components. Suppose that I encounter an evident thing, and that when I look for its components,

constructed in *M* 10.280–4 and *M* 4.6–9. See esp. the phrase in *M* 4.8, referring to the first four numbers ‘in which is contained, as we said, the idea of soul according to the harmonic formula’ (*en hois elegomen kai tēn tēs psukhēs idean periechesthai kata ton enarmion logon*).

<sup>10</sup> I grant to the dogmatist the right to set aside any preliminary steps in which the initial evident thing (e.g. a table) is decomposed into more evident things (e.g. the top and legs). The dogmatist’s claim is not that we will reach non-evident things after one step of decomposition, but that we must reach them after some finite number of steps.

I am unable to discover any: what should I conclude? That it has non-evident components, or that it has no components and is an *archê*? I do not see any way for the dogmatist to secure the second premise.

Having eliminated any evident candidates, the dogmatist then eliminates non-evident but bodily candidates (such as atoms, homoiomerics or any other corporeal entities grasped by thought), concluding that the *archai* must be incorporeal (252–3). The argument is:

- (1) the *archai* of corporeal things must be corporeal or incorporeal;
- (2) but the *archai* of corporeal things cannot be corporeal things; so they must be incorporeal.

A sub-argument motivates the second premise: ‘just as the elements (*stoicheia*) of words are not words, so too the elements of bodies are not bodies’. But this is unconvincing, or worse. Unconvincing, because we might simply discover that bodies are different from words in this regard. The class of words does not contain the elements (syllables) that make up the words, but the class of bodies might be closed under decomposition, so to speak, so that any body that can be decomposed will be decomposed only into other bodies. Perhaps some things, like words, have elements heterogeneous with themselves, and other things have homogeneous elements. Worse than unconvincing, because it may undermine the Pythagoreans’ own view. If the premise is meant to rely on a general principle such as ‘no classes have homogeneous elements’, or ‘a thing and its elements are always heterogeneous’, that is, ‘all things of class F must have *stoicheia* that are not F-things’, then it would follow that the incorporeals in turn would need to have *stoicheia* that were not-incorporeal, that is, corporeal, in nature.

Our Pythagoreans will not wish to endorse such a general principle, since they think that some incorporeals (e.g. planes, lines, numbers, etc.) have *archai* and *stoicheia* that are themselves incorporeal (e.g. lines, points, the Monad, etc.). But if an incorporeal can have elements that are incorporeals, then why cannot bodies have elements that are bodies? Why must bodies have heterogeneous elements as words do, rather than homogeneous elements as incorporeals do? No reason is given.

This same line of objection applies to the next part of the dogmatic exposition (254–7). These paragraphs contain an interesting footnote or parenthesis addressing Epicurean atoms. The Epicurean attempts to resist the exclusion of atoms by saying that they are eternal, and so can act as the *archai* for all beings, despite being bodily. The Pythagoreans respond by distinguishing (though not in these words) between temporal priority and logical or ontological priority. To say that an atom – or the universe as a

whole – is eternal, is to say that there is nothing temporally prior to it. But there may still be things that are logically or ontologically prior to it, and this, the Pythagoreans say, is what we are seeking when we look for the *archai* and *stoicheia* of things. The Pythagoreans then argue that the Epicurean atoms must be based on incorporeals, since if they were based on bodies then an infinite regress would ensue (256).

But this is evidently unsatisfactory. Why does an infinite regress not equally ensue when some incorporeals are based on other incorporeals? It does not ensue in the Pythagorean scheme, because certain incorporeals are not based on anything further. But the Epicureans can use this same answer themselves: no regress will follow for their corporeal *archai* (whether they are atoms or some more basic body), because their corporeal *archai* are not based on anything further. The Pythagorean tries to have the last word by noting that Epicurus said that bodies are conceived of by reference to the aggregate of shape, size, resistance and weight, thus constructing his corporeal atoms out of incorporeal elements (257). But Epicurus was describing the components of our conception, not the components of atoms themselves.<sup>11</sup>

The Pythagoreans take themselves to have established so far that the *archai* must be non-evident, non-bodily and prior to bodies (prior both to evident bodies and to bodies perceptible only to reason). They then examine some candidates which fulfil those desiderata and argue that they are inadequate for other reasons. First they consider Platonic ideas (258), then they consider stereometric shapes: three-dimensional geometrical figures (259–60).

Platonic ideas are indeed non-evident, incorporeal and prior to bodies. But they are not absolutely prior to all things, because they themselves presuppose number. Numbers must precede ideas, because each form ‘when taken by itself is said to be one, but to be two or three or four when taken by collection (*kata sullēpsin*) with another or others’ (258).

Stereometric shapes, for example the geometrical cube, are also non-evident (i.e. not perceptible by the senses), incorporeal and prior to bodies. But geometrical planes precede them, because the shapes are composed out of planes. And planes are composed out of lines, and lines depend on number, since a triangle is composed of three lines and a quadrilateral of four.

<sup>11</sup> On this point see Betegh, in this volume (pp. 130–83), as well as Betegh 2006a: 280–2, which argues that Epicurus held a modified bundle-theory of atomic constitution; if that is right, then the Pythagorean criticism comes alive again.

The argument in 260 thus leads us from bodies through geometrical entities up to number and then argues that all numbers ‘fall under’ the one, since the dyad is one dyad, the triad is one triad, and the dekad is one as well.<sup>12</sup>

‘Moved by these considerations’, the argument continues, ‘Pythagoras declared the Monad to be the *archē* of beings, by participation in which each of the beings is called “one”. And this [i.e. Monad] when considered in relation to its own sameness, is conceived of as the Monad, whereas when it is superadded to itself in accordance with otherness it makes the Dyad that is called “Indefinite” (i.e. because it is not the same as any of the numbered and definite dyads; they are all conceived of as dyads through participation in it).’<sup>13</sup> Thus the *archai* of being are two: the Primary Monad, through participation in which all counted (*arithmētai*) monads are conceived to be monads, and the Indefinite Dyad, through participation in which the definite dyads are dyads.

Here we have finally arrived at the conclusion desired by the Pythagoreans: from a general consideration of what *archai* must be like (i.e. non-evident, incorporeal and absolutely prior), we conclude that only the Monad and the Indefinite Dyad can be *archai*, and *archai* of all things that are. Numbers have great power indeed.

### *Sameness and difference in the first argument*

In the final lines of this first proof, there seems to be some ambivalence about the number of *archai*. The final verdict is that the number is two; but, given that the Indefinite Dyad is said to be made (or ‘completed’, *apotelein*) by the Monad, one could equally imagine it as an argument that there is only one *archē* (sc. the Monad). After all, section 259 argued that geometrical solids could not be *archai* because geometrical planes ‘precede them in conception’ (*proagei gar ... kata tēn epinoian*). By the same

<sup>12</sup> The ‘dyad’ here is presumably not the same as the Indefinite Dyad that is either an *archē* coordinate with the Monad or the first product of the Monad, since the dyad here is introduced as a number, and a number no different in status from the triad and dekad mentioned thereafter. These must simply be numbers, i.e. two, three and ten. About the dekad, the text says, ‘and the dekad is one summation (*kephalaion*) of number’, referring to the Pythagorean idea that ten is somehow perfect as the sum of the first four numbers. But the reference does no work in this passage; the argument does not depend on the dekad’s perfection or on mentioning the dekad at all. The epithet seems purely ornamental or merely intended to remind us that the source is Pythagorean.

<sup>13</sup> The paragraph then continues ‘(That is how they construct their refutation in the case of the monad)’. This last parenthesis is a reference to an argument that Sextus has not yet given but will give in 285, which distinguishes numbers from things numbered. Its position in 285 is somewhat disordered, as I discuss in the main text. This note here at 262 is another sign of its dislocation.

principle, it seems, the Dyad should not be considered an *archē*, since the Monad precedes it in conception.

One could also take the account of the Dyad's derivation as a proof that there are three *archai*, rather than one or two. There is a series of arguments in Plato's *Sophist* that should have raised more alarms for the author of the text cited at M 10.261. At *Sph.* 244bc the Stranger addresses an imaginary monist who says that everything is one, and only one thing is. The Stranger argues that by making statements such as 'one thing is', the monists run the risk of recognizing two distinct things, 'one' and 'being', thus undermining their monism. If they try to preserve their monism by saying that there is only one real thing, and that 'one' and 'being' are simply names for it, then they seem to have acknowledged that there is a plurality once again, even if it is merely a plurality of names. The very statements that the monist makes can undermine his own monism.

At 254e the Stranger has concluded that there must be at least three things: being, change and rest, each of them different from the other and the same as itself. But the Stranger argues that these very statements of difference and sameness – for example 'rest is different from change', 'being is the same as being' – carry ontological commitments that cannot be swept under the rug. 'But what in the world are the "same" and the "different" that we have been talking about?' He then argues in 255–6 that sameness and difference must be added to the three 'greatest genera' already found, to make a minimum of five basic, independent principles. Neither sameness nor difference is reducible to being, change or rest; thus, they must be new independent elements in the ontology. Here again, statements made about a minimal set of *archai* have the effect of enlarging that set.

The same concerns apply to the Pythagoreans' argument in 261; it fails to demonstrate that the one and the dyad are prior to everything else, because of the machinery it makes use of in establishing them. The Monad is one 'through sameness' (*kat' autotēta*), but becomes the Indefinite Dyad when added to itself 'through otherness' (*kath' heterotēta*). But what in the world are 'sameness' and 'otherness', and where do they come from? How can the Monad and Dyad be the only *archai*, if the Monad depends on 'sameness' for its being, and the Dyad depends on 'otherness' for its distinction from the Monad? One can imagine the beginning of an argument that 'sameness' could be derived from the Monad.<sup>14</sup> But it does

<sup>14</sup> Certainly oneness and sameness are similar to each other; we say, e.g., that Cicero and Tully are one and the same. However, there is an argument against deriving sameness from oneness, inspired by the *Sph.* 255cd: 'same' is essentially relational, whereas 'one' is not. One could instead argue that the

not seem even vaguely plausible that otherness could be derived from the Monad. Nor could otherness be derived from the Indefinite Dyad, since in the derivation in 261, the Indefinite Dyad is formed from the Monad with the help of otherness. (Indeed, if we consider that it is otherness that allows the monad to be superadded to itself somehow, then it looks as though otherness has already duplicated the Monad prior to the creation of the Indefinite Dyad.)

These lines of objection are not addressed in the *M* 10 argument that Monad and Dyad are the two *archai* of all other things. It is not surprising here that the arguments are bad or implausible. What is surprising is that the authors of these arguments seem not to be concerned about objections that would occur to anyone who has read the *Sophist*. Or perhaps they were aware of these objections and thought they could be surmounted.<sup>15</sup>

### *Traces of Xenocrates?*

Isnardi Parente (1992) has argued that the doctrine being expounded in sections 250–62 is that of Xenocrates. Her reasons are two. First, there is the fact that a list of principles at 260 derives bodies from planes, planes from lines, and lines from numbers, omitting to mention points as a middle stage in the derivation of lines from numbers. This, Isnardi Parente suggests, is explained by Xenocrates' rejection of the possibility of composing a line out of dimensionless points.<sup>16</sup> This caused him to postulate 'atomic lines', certain minimal lengths from which all longer lines are composed.

The second point that leads Isnardi Parente to favour Xenocrates is the argument for the priority of numbers to Platonic forms. Numbers must precede forms, because each form 'when taken by itself is said to be one, but to be two or three or four when taken by collection (*kata sullēpsin*) with another or others'.

Isnardi Parente understands this as a reference to an 'internally organized complexity' within each form that makes it 'multiple, inasmuch as it comprehends other ideas in itself'.<sup>17</sup> This too she takes to be evidence

word '*autotēs*' is just acting as a kind of variable that is evaluated by context. So, for instance, if we were discussing triangularity, then 'sameness' in that context would mean, simply, 'triangularity' once again. Here, to say that the Monad is conceived to be the Monad 'through sameness' might simply mean, 'through itself', i.e. 'through being the Monad'. But this would more regularly be expressed by saying '*kath' heauto*' rather than '*kat' autotēta*'.

<sup>15</sup> Perhaps taking inspiration from the second hypothesis of Plato's *Parmenides* (e.g. at 143ff.)?

<sup>16</sup> Isnardi Parente 1992: 147.

<sup>17</sup> Isnardi Parente 1992: 144.

of Xenocratean origins, since Xenocrates is credited with saying that forms can be composed of forms.<sup>18</sup>

Although Xenocratean origins cannot be ruled out, I do not find either of these arguments compelling. One sentence in 260 fails to mention points and moves straight from lines to numbers; but the next sentence reinstates points, saying that the line itself presupposes the number two because it is drawn from a point to a point. Furthermore, Isnardi Parente's argument seems to misunderstand the rationale that led Xenocrates to posit indivisible lines. He was not motivated by any special animus towards points; his thought was that it is not clear how unextended entities like points can constitute an extended object like a line. This train of thought applies just as much to the constitution of a plane by lines, or of a solid by planes; if it is hard to see how a row of dimensionless dots can make a continuous line, no matter how many you help yourself to, it is equally hard to see how parallel ranks of breadthless lines can make up a continuous plane, or stacks of depthless planes can bulk up a solid. And when we turn to the pseudo-Aristotelian *De Lineis Insecabilibus*, which gives us indirect evidence for Xenocratean atomism, we can see that its author frequently emphasizes the corollary that whatever goes for lines goes for planes and solids as well (see e.g. 968a1; 968a13; 968b14 and 969a25). So someone motivated by Xenocratean concerns about the composition of higher dimensions from lower dimensions would have no reason to single out points for omission; they would be equally concerned about the composition of solids from planes or planes from lines as about the composition of lines from points. The doctrine behind M 10.260 does not seem to share these concerns.

The other point about the 'internal complexity' of forms involves a phrase that is somewhat obscure in meaning, namely '*kata sullēpsin*'. '*Sullēpsis*' does mean something very like 'comprehension' or 'collection' or 'taking together', so a phrase like this could indeed refer to an idea's comprehending or collecting or taking together other ideas within itself, producing some sort of internal complexity. But it could also refer to someone's taking several forms together as a plurality, where none is in any way internal to the others. So I could take the form of horse by itself and call it one form, or I could take the form of horse along with the form of

<sup>18</sup> She refers to the report of Themistius, *in de An.* 11.19. We are given a comment that Xenocrates or those around him made about the number one (not an ordinary one, but an elevated one, i.e. monad). 'That's why they called that number "formal" (*eidetikón*), inasmuch as it is composed of forms (*hate sunkeimenon ex eidón*).' It is not clear to me from that text that Xenocrates had the view Isnardi Parente ascribes to him, i.e. that forms in general are composed of forms.



triangle and the form of justice ‘by collection’ and call them three forms, without thinking that any of them are in any way internal to the others.

Sextus never uses the phrase ‘*kata sullēpsin*’ elsewhere, so his own usage cannot help us.<sup>19</sup> But he does give another version of this argument at *PH* 3.153, saying that number must be prior to forms because ‘each of the incorporeals has number conceived along with it; for they are one or two or three’. This version is condensed, elliptical and equally ambiguous. However, on balance it seems to me to tell in favour of the simpler, external reading. If the argument required the ‘two or three’ to refer to internal complexity, then only someone who has Xenocratean form-theory in mind would know how to understand this sentence. And if the argument in *M* 10 depended on the internal reading of ‘*kata sullēpsin*’, then it would be extremely careless to leave out that crucial phrase here in *PH* 3; whereas, on the external reading, anyone can make rough sense out of the train of thought, even in its shortened version. Numbers must be prior to forms because we can count forms, and assign numbers to collections of forms.

### *The Indefinite Dyad in the first argument*

The phrase ‘Indefinite Dyad’, which is repeated throughout the dogmatic exposition of *M* 10, does not appear anywhere in Plato’s dialogues but appears frequently in Aristotle’s reports of Plato’s views on the principles.<sup>20</sup> There is also Moerbeke’s Latin translation of Proclus that appears to preserve a fragment of Speusippus in which he attributes an ‘*interminabilis dualitas*’ to certain ‘*antiqui*’.<sup>21</sup> Burkert thinks these *antiqui* or *palaioi* must be even older than Plato, and that Speusippus is attributing a system of a Monad and Indefinite Dyad to pre-Platonic Pythagoreans.<sup>22</sup> The most that I am willing to say, on the basis of the evidence from Aristotle and Proclus, is that the material in Sextus reflects views that were discussed in the early Academy.

In *M* 10.261 the Monad seems to generate the Indefinite Dyad from itself. It is not clear why something perfectly definite like the Monad – indeed, a very paradigm of definiteness and precision – should produce

<sup>19</sup> At *M* 10.287.1 he says that the one through participation in which each numbered-one is conceived as one is both one and many; one per se, but many ‘*kata perilepsin*’. Is the phrase ‘*kata perilepsin*’ the equivalent of ‘*kata sullēpsin*’? Even if so, I do not see how this passage helps us to decide between the internal and external reading of ‘*kata sullēpsin*’.

<sup>20</sup> E.g. *Metaph.* 13.1081a15ff.

<sup>21</sup> *Procli commentarium in Parmenidem*, Klibansky & Labowsky 1953: 38.

<sup>22</sup> Burkert 1972: 63.

something indefinite when added to itself. In ordinary addition, one unit added to one unit is not approximately or indefinitely two units; it is exactly two, and all the more so if the units added are very exactly one. Conversely, the only way to produce something approximately or indefinitely two, through the operation of adding something to itself, is to start with something that is only approximately or indefinitely one. Thus one argument for the non-derivability of the Indefinite Dyad from the Monad is that we need to explain the origin of the indefiniteness, just as much as we need to explain the origin of the twoness. The very existence of indefiniteness remains unaccounted for as long as we start from the primary monad and proceed by definite means.

When the Indefinite Dyad is introduced in *M* 10.261, we are given an explanation of its name: ‘... the Indefinite Dyad, which is called this because it is not the same as any of the numbered and definite dyads’. To make sense out of the reference to ‘the numbered and definite dyads’, we need to keep in mind that there are three levels in play here: there is the Indefinite Dyad, there is the two among numbers, and there is any numbered pair, for example my hands.

My hands are two inasmuch as they are ‘*arithmēta*’, things numbered. But they are not the number two – that is the argument of *M* 10.285–7 (as also of *PH* 3.156–7 and *M* 4.11–14). That is a different distinction from the distinction in *M* 10.260 between numbers (e.g. two, three and ten), and the *archē*-numbers that are the Monad and Indefinite Dyad. As we are told in *M* 10.276, we should distinguish ‘the one in numbers’ from ‘the primary Monad from which it comes’; and we should distinguish ‘the two in numbers’ from the Indefinite Dyad which, along with the Primary Monad, gave rise to it. So there are really three levels of unity: a numbered-one (e.g. my right hand), the number one, and the Primary Monad. So too, there are three levels of duality: a numbered-two (e.g. my hands), the number two, and the Indefinite Dyad. The claim that the Indefinite Dyad is ‘not the same as any of the numbered and definite dyads’ is thus making both claims very compactly: the Indefinite Dyad is not the same as a numbered dyad (e.g. my hands) or a definite dyad (e.g. the number two).

### **The second dogmatic argument that numbers are *archai*: the Trichotomy Argument**

The second dogmatic argument (263–76) proceeds in a more bottom-up method. Instead of starting with abstract considerations of what *archai* must be like, it starts by dividing everything that there is into three

categories: Per Se things (*kath' heauta*) that exist 'by a difference' (*kata diaphoran*), Opposites (*enantia*) and Relatives (*ta pros ti*). It then proceeds by arguing that each of these genera has some genus superordinate to it, and each of these, in turn, finds its superordinate genus eventually in the Monad and Indefinite Dyad.

Sextus introduces this argument by saying, 'And that these [*sc.* the Monad and Dyad] really are in truth the *archai* of the universe, the Pythagoreans teach through a variety of means.' He thus takes this second argument as a sort of confirmation of the results of the first argument. There is no suggestion that it comes from a separate group of Pythagoreans, or from a different period, or will yield results in any way at odds with those of the first argument.

*Is the trichotomy exhaustive?*

It is of course essential to the success of this argument that the initial trichotomy should be exhaustive, since the *archai* eventually discovered are shown to be *archai* only of the things included in the initial trichotomy. Any items left out of the initial collection might well require separate and independent *archai*, for all that the argument shows. Despite this, there is no attempt to show that the trichotomy is in fact exhaustive.

The first of the three classes, the things that exist 'per se' (*kath' heauta*) or 'in virtue of a difference' (*kata diaphoran*), are said to be conceived 'in separation (*apolutōs*) and not according to the relation to another (*oukh hōs kata tēn pros heteron schesin*)'. The use of the negative characterization is promising for exhaustivity, since we can always guarantee an exhaustive division simply by dividing everything into the F's and the not-F's.

Unfortunately, it is not clear that the following two members of the trichotomy complete the job of collecting together the complement of the first one. The second group, the opposites, are said to be 'all those conceived from the opposition of one thing in relation to another' (*hōsa ex enantiōseōs heterou pros heteron*). The third, the relatives, are said to be those 'conceived according to the relation as towards another' (*ta kata tēn hōs pros heteron schesin nooumena*). Both of those characterizations do resemble, approximately, the desired complement of the first third, which would be simply: things conceived 'as according to the relation to another' (*hōs kata tēn pros heteron schesin*). But neither the second nor the third characterization gives us that formula precisely. It is rather as though we were given a trichotomy of birds into (1) the flightless birds, (2) birds that fly by flapping and (3) birds with functioning wings. There is some vague

way in which each of the latter two is a rough complement of the first, but neither is quite on point.

We could simply declare that one of them – the Relatives, say – is close enough to the right formulation so that it can act as the complement of the Per Se (*'kata tēn hōs pros heteron schesin'* differs from *'oukh hōs kata tēn pros heteron schesin'* by the placement of the *'hōs'* as well as by the negation, but one might dismiss this as insignificant). However, the next stretch of argument is directed towards showing that the second and third classes are exclusive of each other: we are given two ways to distinguish any Opposite from any Relative. This means that if we declare that the Relatives are the complement of the Per Se's, then we have excluded the Opposites from being altogether: they are neither conceived in relation to something else (in which case they would be Relatives), nor conceived not in relation to something else (in which case they would be Per Se's).<sup>23</sup>

Alternatively, if Relatives and Opposites are treated as exclusive of each other, then in order to prove the exhaustiveness of the original trichotomy, we need an argument that Relatives and Opposites between them will exhaust the complement of the Per Se's, namely that all of the ways of being conceived 'not Per Se' will divide exhaustively into ways of being conceived as Opposites or as Relatives. But no such argument is forthcoming. We are given arguments that the Opposites and Relatives are exclusive of each other – to which arguments we turn next – but no arguments to rule out some third or fourth way of being 'not Per Se', in addition to the Relative and Opposite ways. An argument of that sort would also have been equivalent to showing that this threefold division is better understood as a pair of sequential dichotomous divisions: first we divide all things dichotomously into the Per Se's and the Not Per Se's; then we divide the Not Per Se's dichotomously into the Opposites and Relatives; then we show that the Opposites and Relatives successfully exhaust the Not Per Se's (i.e. we show some principle according to which that division of the Not Per Se's into the Opposites and Relatives really is properly dichotomous). It may be that this interpolation of the Not Per Se as a genus superordinate to the Opposites and Relatives would have

<sup>23</sup> There is the further complication that the characterizations are all characterizations of how things are 'conceived' (*nooumena, theōreitai*). Thus even if we had an exhaustive categorization of all the ways in which things can be conceived, this would not give us an exhaustive division of all beings (*onta*) if there are any *onta* that cannot be conceived. But the authors of this passage might have accepted a Berkeley-style argument that there are no inconceivable *onta*, on the grounds that if you could conceive of something's being inconceivable, you would, ipso facto, have succeeded in conceiving of it.

interfered with the subsequent argument, in which superordinate genera are interpolated above the Opposites and Relatives, but those genera are not the Not Per Se.

*Distinguishing the Opposites from the Relatives*

In the next section (266–8) we are given two ways to distinguish the Opposites from the Relatives. First there is the Simultaneity Test: a Relative is always generated and destroyed simultaneously with its correlative (any double comes to be double along with a half coming to be half, and so too for their destruction), whereas an Opposite is destroyed along with the generation of its co-Opposite (health is destroyed by the generation of disease, rest by motion).

Second, there is the Intermediation Test: Relatives such as the larger and smaller have an intermediate (the equal), whereas Opposites like life and death have no intermediate state. There is no middle state between health and disease or movement and rest: as soon as there is the least bit of motion, the rest is completely destroyed, and motion is fully present.

It seems to be assumed that these tests will give the same answers when confronted by any pair to be tested: however A and B are classified by the Simultaneity Test, they will be classified in the same way by the Intermediation Test.<sup>24</sup> Otherwise, we would need to decide what to say about pairs that were cross-classified; we would wind up with two more categories of things, coordinate with the Opposites and Relatives.<sup>25</sup>

It may help to explain the relation between the two tests if we focus on what happens to a pair of Opposites A and B when one of them is destroyed. The Simultaneity test tells us that Opposites can never co-occur, so that when we generate A (death, let's say), we have destroyed B (life). This is to say that the destruction of one Opposite is a necessary concomitant of the generation of its co-Opposite. The Intermediation test tells us that there will be no intermediate state for Opposites. As soon as we

<sup>24</sup> Though the parenthetical 'for the most part' (*bōs epīpan*) at 268.2 does seem to register some concern about Opposites that might have an intermediate state. Hot and Cold seem like a pair that one would naturally classify as Opposites by the first test (the generation of heat in anything is *pro tanto* the destruction of coldness in that thing), but Relatives by the second (if we think of the tepid or the body temperature as a sort of intermediate between hot and cold).

<sup>25</sup> I.e. the Opposites and Relatives would be those that come out as such on both tests, and in addition there would be the 'Simultaneity-Opposite/Intermediation-Relatives', and the 'Simultaneity-Relative/Intermediation-Opposites' which would fit into neither of the first two classes.

destroy one of the Opposites, what we get is not some intermediate state, but the co-Opposite itself; when we destroy life, we have generated death. That means that the destruction of one Opposite is sufficient for the generation of its co-Opposite. We could think of the Simultaneity test as emphasizing the necessity of A's destruction for B's generation, whereas the Intermediation Test emphasizes the sufficiency of A's destruction for the generation of B.<sup>26</sup> The assumption that both tests will agree in their results is just the assumption that the destruction of one of a pair will never be necessary for the generation of the other pair without being sufficient for the generation, and vice versa.

That is how it looks when we consider the way in which the two tests will treat Opposites. How do the results for Relatives relate to each other? The Simultaneity Test tells us that Relatives require the co-existence and co-destruction of their correlative. The Intermediation Test tells us that Relatives have an intermediate. Is there any reason why these tests should coincide? Is there any reason why if there is an intermediate between A and B, then they must be found together, and if they are always found together, then there must exist some intermediate between them?

Here is an argument that any Relative by the Intermediation Test must be a Relative by the Simultaneity Test. Every intermediate is a blend and combination of extremes. So if a pair of extremes has an intermediate, then the extremes can be combined and are compatible. But then these extremes cannot entail each other's destruction, so they cannot be Opposites and must be Relatives. Here is an argument that any Relative by the Simultaneity Test must be a Relative by the Intermediation Test: in

<sup>26</sup> I say 'emphasizing' here because in fact the Simultaneity Test already specifies both necessity and sufficiency, at least in our current text. The passage begins by claiming that 'the destruction of one is the generation of the other' (*hē tou heterou phthora genesis esti tou heterou*). And to that extent, the Intermediation Test is redundant, since it spells out only one consequence of the Simultaneity Test. But it is striking that the next line offers to prove that first claim with examples and then lists four examples in which the generation of the one is the destruction of the other (*nosou te gar genesis arsis estin hugieias, hugieias te genesis arsis esti nosou, kai kinēseōs men hupostasis phthora staseōs, genesis de staseōs arsis kinēseōs*). But none of those is a case in which 'the destruction of the one is the generation of the other'. Once we are attuned to the difference between necessity and sufficiency, i.e. the difference between a generation entailing a destruction versus a destruction entailing a generation, then the 'gar' looks inept, since it offers to prove sufficiency by adducing examples of necessity. I think it is at least worth considering the possibility that the opening line originally read '*hē tou heterou <genesis phthora> esti tou heterou*'. This would mean that the Simultaneity Test offers five examples of necessity, and none of sufficiency. This would make better sense of the 'gar' and the four following examples. It would also obviate the redundancy of the Intermediation Test; instead of being entailed by one out of five clauses in the Simultaneity Test, it would offer a fully independent criterion of sufficiency in addition to the necessity criterion of the first test.

the case of Opposites, the destruction of one leads to the generation of the other, so that an Opposite is always succeeded by its co-Opposite. But if both Relatives are always destroyed together, then they cannot be succeeded by each other and so must be succeeded by some third thing, which is neither: and this all men call an 'intermediate'.

These arguments are entirely fanciful and not based on any textual evidence. Our passage does not give us any comparable arguments, good or bad, for the equivalence of the tests. And in general, the passage is lamentably vague about what sorts of things it is classifying, and under what conditions the tests are to be applied. Are the Relatives and Opposites bodies? Or properties of bodies? Abstractions of some sort? May we assume that presuppositions for their obtaining are in place before we apply the tests? For instance, suppose that Socrates remains healthy until his death. We may assume, I take it, that the event of his death brings about the destruction of his health. But we are also told that the destruction of health brings about the generation of disease. So when Socrates is dead, does he have a disease? This seems an unattractive conclusion. The good and the bad are said to be Opposites by the Simultaneity argument and so should not have an Intermediate. And yet the indifferent – that which is neither good nor bad – seems like a very plausible intermediate between the two, just as a state of painless and pleasureless quiescence seems like a plausible intermediate between pleasure and pain (and the existence of just such a state was advocated by Socrates in *Rep.* 584a1).

#### *Ascent to the higher genera*

We are next told (269) that there must be some genus stationed above the three genera we have just examined. It is not clear whether this should be understood collectively or distributively, that is, whether the claim is that there must be some single genus that is collectively superordinate to all three, or whether each of the three must have a genus directly above it, which might or might not be the same for all three. In fact, both of these will turn out to be true: we will eventually ascend to a single genus, but we will start by finding different genera directly above the three we began with. But there is no argument given for the claim that there must be some superordinate genus or genera; the argument that we are given seems directed to establishing that any such genus will in some sense 'precede' the subordinate species, and that they will depend on it, but not that there must be some such genus.

The point of this short argument in 269 is to justify our current method of seeking *archai*. Our overall project in the Trichotomy Argument is to conduct an ascent to the highest *archai* by a different route, so as to confirm the results of the Criterial Argument. But instead of moving up from *archē* to *archē*, we are about to follow a different thread, moving up from the generic to the more generic. And this is guaranteed to produce the same result, if we can be assured that every genus is more *archē*-like than the thing of which it is the genus; by climbing up the genus gradient, we will be climbing up the *archē*-gradient at the same time.

When we ascend above the Per Se, we find the One.<sup>27</sup> It is the paradigm of what it is for something to be per se, and each of the Per Se's is said to be one and per se in accordance with it.

When we ascend above the Opposites, we find that the *archē* of its genus is the Equal and Unequal. Here we find that pairs of opposites each contain a sort of asymmetry in them; one of the pair will be characterized by equality, the other by inequality. So, for instance, rest, health, straightness and being in accordance with nature will all be matters of equality, whereas motion, disease, curvature and unnaturalness will all be matters of inequality.<sup>28</sup> What makes something a matter of inequality, it seems, is that it 'accepts the more and the less', either is or possesses a determinable capable of a scalar range of determinates. So 'being curved', for instance,

<sup>27</sup> The ascent to the One here is noted as an '*epanabasis*' – cf. the use of this word (or cognate verb) at M 10.258.9, 270.3 and 297.4. It is worth noting in passing Aristotle's use of this verb. Three of the six occurrences are not philosophically relevant (they involve its other sense of 'to mount' as referring to animal copulation). Of the three that are relevant, two occur in reports of Pythagorean doctrine, one a passage in which Aristotle is describing how they argue for an ascent to higher principles (*Metaph.* 1.990a6; the other, at *Met.* 342b34, involves Pythagorean theories of comets). The final philosophically relevant passage does not mention Pythagoreans but involves an ascent to an earlier and more fundamental moving cause (*Ph.* 257a22). Just on the basis of Aristotle's usage, then, one might conjecture that this word tends to involve the argumentative ascent in search of *archai*, and that it acquired that sense in Pythagorean circles.

<sup>28</sup> The distinction between the equal and unequal Opposites in 272–3, as well as the choice of examples, brings to mind the Stoic distinction between *diatheseis*, which are incapable of intensification and do not accept the more and the less, and *hexeis*, which do. So e.g. straightness is a *diathesis* for the Stoics, and an Opposite in the genus of the Equals and thus of the Monad for the Pythagoreans, whereas curvature, since it accepts the more and the less, is a mere *hexis* for the Stoics and would count as an Opposite in the genus of the Unequal, and thus Excess and Defect, and thus the Dyad. In his report of the Stoic doctrine, Simplicius uses straightness (*euthutēs*) and bentness (*kamptesthai*) as his central examples. Simplicius tells us that straightness is a *diathesis* because it cannot be diminished or intensified, and 'does not have the more and less' (*mēde echein to mallon ē hēton*); he later says that it is 'unreceptive of the more' (*anepidekton tou mallon*). Simplicius' language is thus very close to the language of Sextus, who says that the things like straightness 'do not receive the more and less' (*ou gar epidechetai to mallon kai to hēsson*, M 10.271) (Simplicius, in *Cat.* 237–8 = *SVF* 2.393 = *LS* 47s).



belongs to the Unequals because it is a determinable which has 'being gently curved', 'being sharply curved', and so on, among its determinates. Motion belongs to the Unequals presumably because it possesses a number of determinables such as 'speed', 'distance', and so on, each of which can take varying determinations. (Though the question arises why temporal duration, e.g. 'moving for ten minutes', does not apply equally to rests, which can be longer rests or shorter rests).

We have ascended to a genus higher than the Opposites, but it turns out to be a bifurcated genus (*sc.* the Equal and Unequal), which reveals a bifurcation among the Opposites we might not previously have noticed. The same thing happens when we look for the genus above the Relatives. We find that its genus is the Excessive and the Deficient, and that of every pair of Relatives (e.g. large and small, high and low), one member (large, high) will belong to the genus of Excessive, and the other member (small, low) will belong to the genus of Deficient. We can see now why every pair of Relatives is taken to have an intermediate, since excess and defect are generally measured by relation to some mean state. Though it is not clear, conversely, that everything measured by relation to an intermediate must be either excessive or defective. When we consider our first example of Relatives, namely 'right' and 'left' (265), we may not mind saying that they are conceived in relation to some intermediate such as 'in the middle', but whether we should say that the left is excessive or deficient, and in what regard, seems unclear.

We have ascended from the Per Se to the One, from the Opposites to the Equal and Unequal, and from the Relatives to the Excessive and Deficient. We can continue this ascent. When we consider the Equal, we will find its *archē* in the One (since it is the One, we are told, that gives us the primary case of a thing's being equal to itself). When we consider the Unequal, we find that its *archē* lies with the Excessive and Deficient, since whenever there is inequality, there is one thing that exceeds and one thing that is deficient. But the Excessive and Deficient themselves have their *archē* in the Indefinite Dyad, since there cannot be excess without two things, one that exceeds and one that is exceeded. 'Thus there have emerged as the highest *archai* of all things the Primary Monad and the Indefinite Dyad' (276).

If we diagram the connections between these genera and their *archai*, placing the first trichotomy at the bottom with the Opposites between the Per Se's and the Relatives, and drawing lines upward to the One and Dyad, then we find that our diagram (Figure 8.1) is shaped somewhat like a capital M:

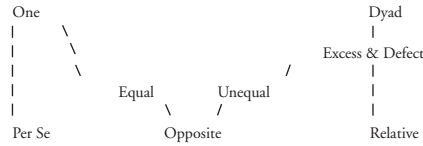


Figure 8.1

The Opposites have one foot, so to speak, in each camp; of every pair of Opposites, one of them will turn out to originate in the One, and the other in the Dyad. Thus in some sense, the opposition between those *archai* is the *archē* of every other opposition.

Or we could describe the landscape this way: when something originates from the One and has no interactions with the Dyad, then it exists Per Se. If it is brought into relation with something originating in the Dyad, it will form the Equal member of a pair of Opposites. Nothing that originates from the Dyad ever exists per se; it always exists in some sort of relation to something else. If it exists in relation to something that derives from the One, then this offspring of the Dyad will be an Unequal member of a pair of Opposites. If it exists in relation to some other offspring of the Dyad, then it will be one of a pair of Relatives, either the Excessive or Deficient member.

When we ask where the intermediates fit into this scheme – those intermediates that must exist in relation to every pair of Relatives – it looks as though they will most likely be instances of the Equal. Indeed, when we were told that Relatives always have an intermediate (268), the first example given was that the larger and the smaller have as their intermediate the equal. This shows how every pair of Relatives could be reconstrued as the Unequal member of a pair of Opposites; just as our diagram above expands the unitary ‘Unequal’ into the variegated ‘Excess and Defect’, so too every pair of Relatives can be collapsed into one unitary member of an Opposite when they are contrasted with their intermediate.

The question of the exclusivity of the original trichotomy now assumes a different complexion. It looks as though most things that appear under one heading will also appear under at least one other heading – if we think that the ‘things’ classified by the original trichotomy are things like Socrates (and our first list of Per Se’s at 263 gives us ‘man, horse, plant, earth, water, air, fire’). The Monad itself, for instance, appears among the Per Se’s as the leading member but appears among the Opposites when it is opposed to the Indefinite Dyad. Smallness is a relative when it is

contrasted with Largeness; but Smallness appears among the Opposites when the Small/Large pair are contrasted with Equal Size as an Unequal Opposite with its correlative Equal. What shall we say? Does Smallness, a Relative, appear among the Opposites? Or only Smallness-when-bundled-with-Largeness-and-opposed-to-Equal-Size? Does the Monad appear among the Opposites? Or only the-Monad-when-considered-in-opposition-to-the-Dyad? Here again we see the significance of the fact that the original trichotomy is a trichotomy of things-conceived-in-ways, rather than of things directly.

The theory here seems to me extremely complicated, and unlikely to be successful in all details. Although the initial trichotomy began from a consideration of cases, the elaboration of the theory became increasingly abstract, and it is not clear whether familiar cases will sit easily within the categories. Are men and women Opposites or Relatives? Setting aside the question of an intermediate state, how would we assess the question whether the generation of one entails or is entailed by the destruction of another? Will we wind up having to say that men stand to women as equal to unequal, or vice versa?

The sense that there is something arbitrary about these assignments should remind us of another equally arbitrary and inscrutable division, the Co-Elementation or *sustoichia* that Aristotle attributes to the Pythagoreans (*Metaph.* 986a23), which gives us ten pairs of (in some sense) opposites: limit/unlimited, odd/even, one/many, right/left, male/female, resting/moving, straight/curved, light/dark, good/bad, and square/oblong. If Burkert is right, then Aristotle's *sustoichia* goes back to the pre-Platonic Pythagoreans, whereas our passage in Sextus comes from an early Academic source later than the one Aristotle quotes. Still, the similarities of thought are very striking.

### **Constructing the world from these *archai* (with a digression on a doctrinal division)**

We have been given two independent arguments that the *archai* of all things are the Monad and the Indefinite Dyad. From here until the beginning of the sceptical refutation (276–84) Sextus will continue to expound the Pythagorean cosmology, showing in more detail how these *archai* generate everything in the world. He will also note in passing (281–2) that there are two groups of Pythagoreans behind his report, who differ in the number of *archai* that they posit, and in their method of generating derivative elements from them.

Constructing the numbers from the *archai*

Our first task is to make the numbers (276–7). The Monad generates the one-in-numbers; the Monad in cooperation with the Dyad creates the two-in-numbers. This distinction between the Dyad and the dyad-in-numbers (*hē en tois arithmois duas*, 277.1) is not described in any detail. We certainly do not learn enough about it so that we could see why it should apply only to One and Two, and not generate a double system for all of the other numbers (e.g. a Primary Twenty-Three as well as a ‘twenty-three in numbers’). We are told, however, that there are two ‘twice’s’: a ‘twice’ (*dis*) derived from the Indefinite Dyad, that is prior to the ‘twice-in-numbers’ (*to dis en toutois*, sc. *arithmois*, 276.7).<sup>29</sup> The twice-in-numbers is derived from the two-in-numbers, and the two-in-numbers is derived from the Monad, and from the ‘twice’ that is derived from the Indefinite Dyad. ‘And the rest of the numbers, too, are brought to completion from them, with the one always limiting (*peratountos*) and the Indefinite Dyad generating the two and extending the numbers to an infinite quantity.’

Somehow the rest of the numbers are being generated here, but it is not clear how. Isnardi Parente thinks that the even numbers are produced by duplication in each case, and the odds are produced by reduplication followed by the addition of a unit: ‘the triad is formed by the reduplication of the one, plus another unit; the five is produced by the reduplication of the two, plus a unit; and so on’.<sup>30</sup> While this is certainly possible, it is neither mandated by the text nor even strongly hinted by it. One could instead imagine that the Dyad offers something more like an indeterminate and shapeless ground of quantity from which the One in every case determines some particular definite quantum. So whether the number to be generated is odd or even, the One selects from the indefinite plurality of the Dyad a certain definite portion, **one** seven, or **one** eight. This is one way of understanding the claim that the one is ‘always, in every case, limiting’ (*aei peratountos*), which makes it sound as though it should perform parallel roles in all cases of generation, as opposed to the disparate roles it plays in the generation of odd and even numbers in Isnardi Parente’s reconstruction. It might also give better sense to the comment that follows in 277.5–7 that ‘for this reason [i.e. the generation of number],

<sup>29</sup> Isnardi Parente notes that the phrase in Sextus, ‘*dis gar to hen duo*’, i.e. ‘two is twice the one’, is a nearly perfect echo of a phrase that Alexander quotes from Aristotle’s *Peri Tagathou*, in which Aristotle wrote ‘*dis gar hen duo*’ (Alex. in *Metaph.* 57.10 H).

<sup>30</sup> Isnardi Parente 1992: 151.

they say that the Monad has the status of the active cause, and the Dyad has the status of passive matter (*hulê*). But there were various methods of constructing the numbers in antiquity, and our passage has too few details to allow us to decide which one it is attempting to express.<sup>31</sup>

*Constructing the geometrical entities from the Monad and Dyad*

‘And in whatever way they [*sc.* the two *archai*] generate the numbers that subsist from them, that is how they compose the cosmos and everything in the cosmos.’ This remark at 277.7 looks forward to 283, in which ‘earth, water, air, fire and in general the whole cosmos’ will be created. But first our sources must create points, lines, planes and stereometric solids from the Monad and Dyad. They do this in three ways, two of which are only slight variations on each other, but the third of which differs sufficiently to warrant Sextus’ explicit notice of the divergence.

According to the first method, the point and line arise from the Monad and Dyad by a kind of analogy. The point is like the Monad in that both are indivisible; the line is like the Dyad in that both are conceived by transition (*kata metabasin*). The point is like the Monad in that the point is a sort of *archê* (*archê tis*) for lines, as the Monad is a sort of *archê* for numbers (though alas we have just seen that the Dyad is also a sort of *archê* for numbers). When we move on to the generation of plane from line, we presumably now say that the line is like the Monad in that it is indivisible with respect to the second dimension, while the plane is like the Dyad in that it is divisible in respect of the second dimension; and again the plane, which is indivisible in the third dimension, will stand as Monad to the solid conceived as Dyad.<sup>32</sup>

The next method, introduced by the phrase ‘and in a different way’ (*kai allôs*, 279), takes for granted some way of generating points and then generates the subsequent geometric entities from points. When two distinct points are posited, then the line is created as ‘the breadthless length conceived between two points’ (279).<sup>33</sup> Next, ‘when three points are

<sup>31</sup> Famous methods include that of the *Parmenides* (*Prm.* 143d ff.); Plutarch describes another (*De Def. Orac.* 428F *et seq.*).

<sup>32</sup> My thanks to an anonymous reader for suggesting this way of extending the point and line case to the higher dimensions.

<sup>33</sup> ‘The plane exists in accordance with the triad; it is conceived not only as a length, as was the line, but in addition it has taken a third dimension, i.e. breadth’ (279). I suspect that ‘third dimension’ here (*tritên diastasin*) is a mistake for ‘second’ (*deuteran*), encouraged by the fact that we have taken a third point and created something in accordance with the triad (*kata tēn triadā*). But what we create in accordance with the third point is not the third dimension, but only the second. Note that only

posited, two at opposite ends of an interval, the third one in the middle of the line completed by those two, but again standing off at a different interval [*sc.* to the side of the line], then a plane is completed' (280). In the same way, we can place a fourth point above the plane and form a pyramidal solid, that is, one in the shape of a tetrahedron.

This method of using different numbers of points to stake out the boundaries of the other geometrical entities I call the '*horos*-method', for the ancient method of using boundary stones, *horoi*, to delineate land. It is followed by a different method in which, as Sextus tells us, 'body is composed (*sunistasthai*) from one point,' though here 'generated at several moves' would be a less misleading thing to say than 'composed'.

The idea of this second method is that a single point can flow (*rhein*), in such a way as to give rise to a line. The line in turn can flow sideways, creating a plane. And the plane, finally, can sink or rise into the third dimension so as to create body. This flux method of creating the geometrical entities was already introduced in an earlier portion of the treatise *Against the Physicists*, and Gábor Betegh's discussion of M 10.380–90 should be consulted for that passage.

Sextus flags the flux method as a divergent theory within Pythagoreanism, twice. First, at 281, he introduces it by saying 'But some say ...' (*tines de ... phasi*). And after he has presented the flux method, he continues:

This Pythagorean position differs from the position of the previous group [*i.e.* the *horos* method]. For those people (*ekeinoi*) made the numbers out of two *archai*, the monad and the indefinite dyad, and then from the numbers they made points and lines and plane figures and solids. But these people (*boutoi*) fabricate all things from one point. For from it comes the line, and from the line comes the surface, and from that comes body.

### *The flux method and its originator*

To whom may we attribute the method of flux? Burkert and Isnardi Parente give credit for its creation to Archytas of Tarentum.

The ground for the attribution is that Archytas, a Pythagorean who was Plato's contemporary, is credited with a geometrical construction in which he makes use of solids of revolution.<sup>34</sup> That is, he traces a cone by first specifying a plane triangle, and then saying 'let the triangle APD be

after the creation of the solid pyramid does Sextus say that it now has 'three dimensions' (*treis diastaseis*): length, breadth and depth (280).

<sup>34</sup> Eutocius, *Commentary on Archimedes' On the Sphere and Cylinder* 2 (3.84.12–88.2 Heiberg-Stamatis). For discussion see Huffman 2005: 342–60.

rotated and make a conical surface', and he traces a toroid by holding one end of a semi-circle fixed and moving the other end. The surfaces of the cone and toroid meet a given cylinder in one point, and this point gives a length that was to be found.

Burkert (1972: 68), discusses the 'thought that the point in movement makes the line, the line in movement the plane, and the plane in movement the solid', that is the method of flux *M* 10, and, after describing the evidence that Archytas was interested in solids of revolution and definitions of movement, he concludes, '[t]hus, the conjecture seems justified that this comprehensive treatment of geometrical magnitudes by the use of the idea of movement [i.e. the flux method of generating geometrical entities] comes precisely from Archytas'. Isnardi Parente (1992: 160) concurs: 'Archytas remains the author to whom the theory of *rhysis* [flux] can most plausibly be attributed.'

However, the most recent exhaustive presentation of what is known about Archytas (Huffman 2005) comes to a different conclusion.

Huffman (2005: 500) attributes to Archytas a definition of point found in Aristotle's *Topics* (108b24–30). Point here is said to be the '*archē* of line', as the monad is the '*archē* of number'. Although Archytas is not mentioned in this passage, Huffman argues from context and vocabulary that the definitions are his. Huffman also argues that, given Archytas' views on definition, it follows that 'numbers and lines would be basic entities for Archytas' – numbers and lines, that is, rather than monads and points. He continues:

Archytas' definition of the point with its attendant thesis that the point is not ontologically separable from the line argues against attempts to make Archytas the author of the ontological derivation sequence whereby the line comes into being by the motion of the point, the surface by the motion of the line and the solid by the motion of a surface. If the point does not exist independently of the line, it can hardly bring the line into existence by moving.

It is somewhat surprising that this should be the conclusion Huffman draws from attributing to Archytas the definition of the point as the '*archē*' of the line, since bringing things into existence seems like one of the typical jobs that an *archē* does. If Archytas used '*archē*' in such a way that when *x* is the *archē* of *y*, then *x* cannot bring *y* into existence, and *x* is ontologically dependent on *y*, then this would put him at some distance from common Greek usage, especially among the philosophers of his day.

Huffman continues, '[t]his derivation sequence [i.e. the flux method] is assigned to the Pythagoreans in the later tradition [he cites our passage of

M 10], but Burkert has shown conclusively that it cannot be assigned to the Pythagoreans of the fifth century (1972a: 66ff.)’.

This comment is rather odd, since, as we have seen, Burkert attributes the flux method to a Pythagorean of the fifth century, namely Archytas. I suspect Huffman has misunderstood Burkert here; the derivation sequence that Burkert denied to fifth-century Pythagoreans was the *horos* method rather than the flux method. However, Huffman himself is unambiguous in denying that Archytas was the author of the flux method.

We are faced with disagreement among experts, and I have no new insights that can resolve it. I am not much moved by Huffman’s argument from the definition of point found in the *Topics*. His arguments for attributing it to Archytas are highly indirect, and the definition itself, namely that the point is the ‘*archē*’ of the line, seems to me exactly what a proponent of the flux method would say.

On the other hand, my sympathies are with Huffman when he questions the most common grounds for attributing the flux method to Archytas, namely his interest in solids of revolution. The construction attributed to Archytas does indeed require us to imagine triangles tracing out cones and semi-circles tracing out toroids. But we have no grounds for attributing to Archytas the thought that these operations create or generate solids from planar or linear figures, rather than simply finding or demarcating them. The language in which his construction is recorded makes no use of flux words, and indeed employs only the word (*periagein*) that Euclid uses in his definitions of the sphere, cone and cylinder.<sup>35</sup>

When we rotate a triangle while holding one side of it fixed there is no reason to think, and Euclid presumably did not think, that we are generating a new conical volume of points, lines, planes and solids where no such entities have previously been. There is even less reason to attribute to Euclid, or Archytas, the thought that such a rotation can create a new third dimension, *ex nihilo*, from a previously two-dimensional array. One might rather think that the existence of a three-dimensional manifold is a precondition for the rotation itself: if prior to the revolution the world is entirely flat and two-dimensional, then how is the triangle to get off the page? In what direction, and by what means?

It may also be worth considering that in Archytas’ construction, his first introduction of a three-dimensional object does not involve the construction of a solid by the method of revolution in any case. Having sketched a two-dimensional circle ABD, he then simply says, ‘let there be

<sup>35</sup> Euclid XI, defs. 14; 18; 21. Huffman makes this point in his 2005: 395.



conceived a right semi-cylinder on the semi-circle ABD'. He has moved from two dimensions to three by stipulation, not by revolution or flux. The cone and toroid come later, and intersect with the semi-cylinder. The semi-cylinder is not itself generated as a solid of revolution (indeed the generating rectangle is never stipulated), nor is it put into place by the movement of planar figures. It is just dropped into place, from above, as it were, already a fully three-dimensional figure. And the possibility of its position above the circle is assumed in silence. No operation of flux is needed either to create solid figures, or to create the third dimension which they occupy.

It in no way diminishes Archytas' wonderful facility with solids of revolution, or his nearly miraculous feat of spatial imagination in this construction, to say that this proof has no compelling connection with the flux method for generating new dimensions. The resemblance is no more than vague and impressionistic.

At the same time, vague and impressionistic resemblances are not the exclusive province of modern interpreters. If they can inspire nebulous successions of thought in us, they may have done so in the ancients as well. Solids of revolution put critics X and Y in mind of generating higher dimensions from lower dimensions; they could have had the same effect on Archytas. The fact is, we have bad arguments for attributing the flux method to Archytas, and bad arguments for denying the attribution. The originator of the flux method is still, to my mind, unknown.

*From stereometric solids to the cosmos at large*

At the beginning of 283 Sextus once again acknowledges the divergence between the *horos* method and the flux method, this time by waving it away. 'At any rate, that is how the stereometric solids are generated: from the numbers which precede them.'<sup>36</sup> Then in a few short sentences Sextus recounts the origination of the 'perceptible bodies', the elements, and 'in general, the cosmos'. The cosmos in turn is said to be governed by harmonies, which are of course numerical in origin. The parallel passages

<sup>36</sup> I take the sense of '*plên*' at the start of this sentence to be similar to the one noted by LSJ s.v. when it is used 'to break off and pass to another subject'. In other words, I take it as marking the resumption of the main lines of argument after a digression, whose details are thereby demoted to secondary importance.

in *M* 4.6–9 and *PH* 3.155 are not much more detailed, but *M* 4.6 does add the detail that the soul, too, is constructed from the harmonies.<sup>37</sup> This helps us to understand the sentence in *M* 10.284 in which Sextus refers us to his own treatises ‘On the Criterion’ and ‘On the Soul’ for more detailed treatments of the question. The reference to a treatise ‘On the Criterion’ presumably refers to the Pythagorean material in *M* 7.93ff. already mentioned above; the treatise ‘On the Soul’ is presumably distinct from any of the Sextan material known to us.

### The sceptical refutations

Sextus now turns to his task of refuting the dogmatic position (285–309). Again, I divide this sceptical section into five separate arguments.

#### *The argument against the distinction between number and thing numbered (284–90)*

At *M* 10.284 Sextus marks a clear transition between his exposition of dogmatic material, and his refutation of the dogmatists:

Now having demonstrated that the Italian physicists attribute great power to numbers, let us proceed to prepare the *aporiai* that are in accordance with the topic.

In 285, however, he does not turn to the refutation of a dogmatic thesis. Instead, he returns to the exposition of dogmatic material, introducing a new dogmatic argument that numbers are distinct from things numbered. Twenty-four sections earlier, at 261–2, Sextus had used the term ‘things numbered’, namely ‘*arithmēta*’, and then made an opaque reference to ‘how they [the dogmatists] refute in the case of the monad’. Nothing in the surrounding sentences or paragraphs explains that reference to a ‘refutation in the case of the monad’. But now in 285–7 we are given the dogmatic argument that things numbered are distinct from numbers (and so, in particular, that the monad is distinct from any numbered unit). After that, in 288–90, Sextus can turn to his own sceptical refutation of that argument.

<sup>37</sup> ‘They say that the animal is ensouled (*psukhousthai*) in the same way that the whole cosmos is governed, i.e. in accordance with harmony’ (*M* 4.6).

Sextus could have introduced the dogmatic argument for the distinction where it belongs, in the dogmatic section. The fact that he only gives it after he has officially announced his transition to the sceptical section seems like a sign of poor organization. It is worthy of note that the same structural flaw is present in the parallel *M* 4 passage, but it is not present in the *PH* 3 passage.<sup>38</sup> On this score, *PH* 3 seems better organized than the parallel passages in *M* 10 and *M* 4.

The dogmatic argument seems to run something like this:

- (1) suppose that the numbers are not distinct from the things numbered;
- (2) suppose, as an instance, the number one is not distinct from the things numbered one;
- (3) then the number one will be one of the things numbered one, that is, one of the perceptibles (*aisthēta*), as for instance some animal indicated by ostension (*to deiknumenon zōon*) and called 'one'.
- (4) There cannot be many 'ones'.
- (5) If the indicated animal is one, then a plant (for instance) that is not indicated will not be one (since then there would be many 'ones', contrary to (4));
- (6) so, on the suppositions in (2) and (3), the plant is not one.
- (7) But in fact, the plant is one.
- (8) So the indicated animal is not one
- (9) and parallel arguments will go for any other thing numbered one.
- (10) So, the supposition in (2) is false: the number one is distinct from the things numbered one
- (11) and the same will go for any arbitrary number (*plēthos*).<sup>39</sup>
- (12) So the supposition in (1) is false: the numbers are distinct from the things numbered.

Anyone who doubts the conclusion here will want to consider the third and fourth premises: one might think that the number two is not distinct from the things numbered two, because it is somehow dependent on all of the pairs, not one pair.

But this is not the line of objection that Sextus pursues. Instead, he offers in 288–90 a kind of refutation by parity of reasoning, or *parabolē*:

<sup>38</sup> The transition from dogmatic exposition to sceptical refutation is announced very clearly at *M* 4.10, but then 4.11–4.14.2 change direction in order to present a straight exposition of the dogmatic view, before the sceptical refutation starts at 4.14.3. By contrast, the dogmatic argument for distinguishing numbers from things numbered occurs at *PH* 3.156, at the end of the dogmatic exposition, and prior to Sextus' announcement that he has begun his refutation. From that point on, there is only sceptical refutation without further dogmatic exposition.

<sup>39</sup> I assume that the references to '*plēthos*' in 287 should be taken as a shorthand way of applying the argument to any arbitrary number greater than 1: two, or three, or four, or . . .

(288) When the Pythagorean philosophers say such things, they are saying something similar (*homoion ti legousi*) to the claim that none of the individual human beings is a human being . . . (290) but it is absurd to say that none of the individual human beings is a human being. So it is absurd to say that each of the numbered things is not one.

What appears in the ellipsis marked between sentences in 288 and 290 above is something like the following. First, there is a dogmatic argument:

- (1) Human being is conceived as rational mortal animal;
- (2) on this account neither Socrates, nor Plato, nor any other specific human being is human being.
- (3) For if Socrates *qua* Socrates (*katho Sōcratēs estin*), is human being, then Plato will not be human being.
- (4) But Plato is said to be human being.
- (5) So Socrates is not human being;<sup>40</sup>
- (6) and the same will go for any particular human being, that is, none of them is human being.<sup>41</sup>
- (7) Rather, the thing through participation in which each is conceived as human being is human being, and it is not one of them.

Thus the human being is distinct from any of the particular human beings. The connection between premises 1 to 3 seems to be the thought that if Socrates *qua* Socrates were human being, then human being would not be conceived of as rational mortal animal, but rather as ‘Socratic thing’, and other things would be human just in so far as they resembled Socrates or instantiated Socraticity. And since Plato does not instantiate Socraticity, he would not be a human being.

This argument has some value, to the extent that it highlights the difference between any given human being and the essence of humanity, or, as we might say, what it is to be a human being. Socrates is not what it is to be a human being, and indeed what it is to be a human being is distinct from any given human being. But of course, it is very misleading to phrase this by saying ‘Socrates is not human being’, since that might be taken as equivalent to ‘Socrates is not a human being’. It is possible to employ analogously misleading phrasing in Greek, and Sextus exploits this possibility. He claims to be reporting a dogmatic

<sup>40</sup> Note the dropping of the qualification ‘*qua* Socrates’.

<sup>41</sup> Again, the ‘*qua*’ qualification is dropped. The right inference is not ‘no particular human being is human being’, but rather, there is no particular human being, NN, such that NN *qua* NN is (what it is to be) human being.

argument; did the dogmatic argument also express its conclusion misleadingly, as ‘none of the individual human beings is human being’? We do not know. At the parallel passage in *M* 4.14 Sextus attributes this argument to Plato, but it certainly is not found in this form anywhere in Plato.

It should also be noted that the earlier argument (285–7) about number and things numbered did not work in exactly the same way; the argument did not appear to turn on the idea that if a certain given animal (e.g.) were one, then it would also be what it is to be one, so that everything else would be one only by instantiating that animal. Instead, the argument seemed to turn on the thought that if a certain given animal were one, and other animals were also one, then there would be more than one one, which (for reasons not stated) would be impossible. Perhaps we ought to read the first argument differently, so as to bring it into line with the second argument? In any case, we are given Sextus’ sceptical refutation of this argument in 290, and it is very succinct:

but it is absurd to say that none of the individual human beings is human being.

That is the entire refutation of the dogmatic argument: a flat assertion that the conclusion is absurd. And this refutation is supposed to do double duty, by parity, for the argument about numbers. This is very disappointing; while the dogmatic arguments are not themselves either impressive or convincing, this sceptical response to them is equally unconvincing. Perhaps one could attribute the weakness of the response to the sceptical quest for *isostheneia*, but the fact remains that Sextus is sometimes capable of showing great subtlety and insight in his destruction of dogmatic arguments, and here he shows neither.

### *The argument against genus (291–2)*

Sextus next says that the aporia prepared against genus has anticipated the Pythagorean doctrine: he seems to be referring to some argument that he has already constructed and deployed against genus. Bury thinks the parallel is to be found in *PH* 2.219; this identification presupposes that that part of *PH* 2 was written before this part of *M* 10. Here too the rough structure is that of a *parabolē*: there is a certain argument which shows that genus is *aporos* – unworkable, confused, unavailing – and the argument about number resembles it in such a way that it will be *aporōteros*, even more unworkable and unavailing.

The argument claims that the generic human being (*ho genikos anthrōpos*) is inconceivable; this is proved by denying that it can be conceived in a variety of ways. This is taken to count as an argument against the genus human being, but it is not clear why the coherence of a genus should depend on the coherence of a generic item correlated with it. It may, for instance, be easier to conceive of the genus of European nations, than to conceive of a generic European nation.<sup>42</sup> It is also not clear whether the application to the case of numbers involves treating the One as a genus or as a generic. The argument is very sketchy and none of the individual moves is elaborated.

*The argument against participation (293–8)*

This stretch of argumentation is at least very clearly organized through a series of disjunctions: one or many, part or whole, same or different, and so on. The dogmatists claim that there is a certain idea of one, through participation in which all of the individual ones are one. Sextus then argues that there must be either a unique idea of one or several ideas of one.

Within the first arm (293–5), Sextus says that each participant must participate either in the whole of the unique idea, or in a part of it. But there are puzzles to be faced if participants participate in the whole of it (then the first customer will crowd out all others), or if participants participate in only part of it (a genuine one, a monad, must be partless and indivisible).

Within the second arm (296–8), according to which there are several ideas of one, Sextus argues that there will be problems whether two individuals partake of the same idea of one or different ideas. If they partake of the same idea (one out of several), then all of the problems of the first arm recur. If they partake of distinct ideas, then one-over-many issues arise; in virtue of what are the several ideas all ideas of one?

The general line of argument goes all the way back to the first half of Plato's *Parmenides* and problems that Parmenides poses to Socrates there (*Prm.* 131). On the whole, this material seems very well organized and well presented.

<sup>42</sup> Can we always produce a generic G from the genus G simply by taking the properties common to all the members of G? (No; the generic cow has four legs, even if some members of the genus are missing a limb.) If we cannot construct a coherent generic G, in this or other ways, have we thereby shown that there is something incoherent about the genus G, or that it does not cut at the natural joints?

*The argument from human apprehension (299–307)*

Whatever is apprehended by human beings, Sextus tells us, must be apprehended either by sensation (*aisthēsis*) or by intellect (*dianoia*). Section 299–301 argues that numbers cannot be apprehended by sensation; sections 302–7 rule out intellection. The argument against apprehension by intellection is modelled on a passage in Plato's *Phaedo* that Sextus quotes verbatim at 306.

The first argument against sensation relies on the distinction, previously attacked by Sextus, between numbers and things numbered: what we can apprehend by sensation are things numbered, not numbers themselves. The second argument claims that deliverances of sensation must arise without teaching (*adidaktōs*), whereas we need to be taught about numbers.

The attack on intellection also divides into two, following a division that Sextus finds in Plato's own attack. In 302–4 (following *Phd.* 97a2–5), Sextus argues that it is inexplicable why units that were not conceived as two prior to their conjunction should be conceived as two after it. How could mere conjunction (*sunodos*) have this effect? In 305–7 (following *Phd.* 97a5–b3), he puts further pressure on *sunodos* by pointing out that sometimes one thing is turned into two by division and separation. If division and separation can be the cause of two, and *sunodos* is the opposite sort of cause, then how can it produce the same sort of result, turning ones into twos?

The verbatim quotation from Plato comes after both arguments have been presented, and it may not be immediately clear that the first half of the quotation in 306 was already paraphrased by Sextus in 302–3. The second half of the quotation is paraphrased one way in 305, and then paraphrased differently in 307.

The main difference between the 302–4 argument and the 305–7 argument is that the later passage focuses on the problem of opposite causes (*aitia*), where the earlier passage raises problems only for the single cause, *sunodos*.

Sextus reports Plato's problem of *sunodos* in 302–3 – how can mere *sunodos* transform two previously separate units into a two? – and then offers some supporting arguments for it in 303–4 that do not correspond to anything said in the *Phaedo*. Sextus argues that if something does accrue to the units after their *sunodos*, for example twoness, then it will cause the pair of units to overshoot their target and produce four (i.e. unit+unit+twoness) instead of two.

And if to the *sunodos* of ten separate units there is added tenness, the dekad, as a further addition, then ten will be infinity times infinity. (Now we are at two removes from the Platonic material: this aporia is a further variation on the idea of something accruing to units after their *sunodos*, which was already a Sextan gloss on Plato's text.) The argument for this, already given at M 9.303, is that a ten contains (in some sense) a nine, an eight, and so on. But then it also contains (apparently) all of the sums of the things it contains, e.g. a seventeen ( $9 + 8$ ), a fifteen ( $8 + 7$ ), and so on. But if it contains a seventeen, then it also contains a sixteen, and so a thirty-three ( $17 + 16$ ). These two methods, of decrement and of addition, can be alternated to generate any higher integer desired. And once one has generated the entire natural number system by starting from ten, it will be clear that the same generation can be repeated starting from each of these other integers generated in the first round; that is the sense in which it contains an infinity times an infinity.

The problem of opposite causes is viewed from two perspectives. In 305 we grant that division is a cause of being two and then wonder how, in light of that fact, conjunction can be a cause of two. In 307 we grant that conjunction is a cause of two and then wonder how, in light of that fact, division can be a cause of two. The 307 version is closer to Plato's words than the 305 version is, though since the problem is essentially symmetrical (how can two opposite processes be causes of the same outcome?) there is nothing especially vicious in Sextus' paraphrase in 305.

The Platonic material began in 302 as the second arm of the human apprehension argument, as a way of showing that numbers cannot be grasped by intellection. Thus it might have been helpful for Sextus to conclude 307 by saying, for example, '... so number cannot be apprehended by intellection. But since it must be apprehended by either sensation or intellection, and it is apprehended by neither, then number cannot be apprehended by human beings.'

The lack of a tidy recapitulation may reflect some uncertainty on the part of Sextus about how to integrate the material from the *Phaedo*. He is borrowing Plato's puzzles about numbers, but he is surely aware that Plato himself does not conclude from them that numbers cannot be apprehended by human beings. And nothing in the *Phaedo* quotation licenses the conclusion that numbers in general cannot be apprehended – it simply draws attention to some puzzles about how to use causal language in relation to numbers. In fact, it is strange that Sextus ever should have thought that the *Phaedo* would be a good source from which to draw arguments for the impossibility of apprehending numbers by



intellection. Perhaps he remembered the *Phaedo* as a dialogue in which Socrates rejects the senses and all enquiry by the senses, and he pledges to use intellect alone (66e), so that if he encounters any subsequent difficulties in grasping numbers, these can be treated as difficulties for the intellect. In moving from the sensation half of the human apprehension argument to the intellection half, Sextus does use a phrase that is suggestive of the *Phaedo*'s outlook: 'when one has left the sensibles (*apostas tōn aisthētōn*) . . .'

*The argument from addition and subtraction (308–9)*

The final argument looks like an attempt to pull together some of the materials from the passage on Plato and present them in a more systematic, regularly organized way. In elaborating on the problems with *sunodos* (303), Sextus had shown that we cannot solve Socrates' puzzle by saying that something is added (*prosginesthai*) to the units when they come together. Now he combines the elements of *sunodos* and addition into a larger framework by considering the alternatives of addition, subtraction or neither. He also frames the question in such a way that he can offer the kind of fully satisfying conclusion that eluded him at the end of the Platonic material: he puts the very existence of number at stake.

- (1) if there is number, then  
when a monad is brought together with a monad, then
  - (1a) either something is added
  - (1b) or something is subtracted
  - (1c) or nothing is either added or subtracted.
- (2) But if nothing is either added or subtracted, then there will not be a two, any more than there was prior to the *sunodos*;
- (3) and if something is subtracted, then there will be a decrease of one monad, and so there will not be a two;
- (4) and if something is added to the monads, e.g. a dyad, then there will be four in place of the requisite two.
- (5) But this is absurd
- (6) so number does not exist.

This argument has virtues, but it also has deep flaws. On the positive side, the opening tripartition is clear and exhaustive.<sup>43</sup> And the next three

<sup>43</sup> I take it that the fourth possibility, in which something is added and something is subtracted, will be subsumed under the addition case if more is added than subtracted and subsumed under the subtraction case if more is subtracted than added, and under the neither-case if the addition and subtraction exactly cancel each other.

premises are neatly designed to address each arm of the tripartition, in reverse order. And the overall schema looks roughly like *modus tollens*: if *p* then *q*; not *q*; therefore not *p*. So there is an agreeable structure and symmetry to it.

But these attractions vanish on a closer look. There are, to begin with, very grave discrepancies between the opening premises and the final conclusion. If we want to conclude ‘so, there is no number’, from a first premise that says ‘if there is number, then (*a* or *b* or *c*)’, then we must demonstrate the falsehood of *a*, *b* and *c*. But *a*, *b* and *c* in this case are never shown to be false. Indeed, they are shown to be true, or at least coherent. Option *a*, for instance, says ‘a monad is brought together with a monad, and something is added’. And this state of affairs is perfectly coherent and is explored in premise 4. What we learn in premise 4 is that this state of affairs is not one in which a two is generated. Instead, a four is generated, and this is said to be absurd. But absurdity is not falsehood. And more importantly, the failure to generate a two, whether absurd or not, has nothing to do with proving Option *a* to be false, since Option *a* said nothing about whether a two was generated. Indeed, none of Options *a*, *b* or *c* said anything about whether a two is generated or not. So the subsequent premises 2–4, which focus on whether a two is generated, are entirely incapable of showing that the consequent of (1) is false.

We could come closer to creating a valid argument if we changed premise 1 in the following way:

- (1\*) if there is number, then
  - (2) when a monad is brought together with a monad, then
    - (1a) either a two will be generated by addition
    - (1b) or a two will be generated by subtraction
    - (1c) or a two will be generated by neither.

After this change, our current premises 2 and 3, which show that a two will not be generated by (2) neither adding nor subtracting, or by (3) subtracting, would successfully show that 1b and 1c are false. But it is not clear whether our current 4 would show that 1a is false, since it might be that in generating a four, one has *ipso facto* generated a two. (Certainly the method of decrement in 304 assumed this.) We could edit clause 1a to read ‘a two and no more than two will be generated by addition’. This would restore the right sort of connection between the new 1a and 4, so that 4 would properly contradict 1a and show that it is false.

So we can transform Sextus’ argument into a valid argument by rewriting the first premise very thoroughly. But all of this rewriting will

simply cast doubt on the premises' joint plausibility. Why should we believe that if there are any numbers, then when a monad is brought together with a monad, then a two and no more than two will be generated either by addition or by subtraction or by neither? That is far from an obvious claim. We might think, for instance, that there are numbers, but that they are never generated at all. Raising problems for the generation of numbers from monads will cause problems *ad hominem* against the Pythagoreans discussed in the earlier section, and, given that set of opponents, it would make sense for Sextus to argue that there are no generated numbers. But he claims instead that there are no numbers, *tout court*, and for that conclusion his current argument is inadequate.

One can see, again, how this argument is an attempt to regiment and systematize some argumentative elements that were suggested by the quotation from the *Phaedo*. But the regimentation is inadequate. The argument is not valid, and its superficial orderliness does not address its real deficiencies.

### Conclusion

The sceptical arguments in this passage are rather worse than average for Sextus. Any extended selection of his arguments will be a mixed bag, of course. But many arguments in Sextus are extremely good, well crafted, philosophically interesting, and memorable. Nothing in this passage rises to that level.

Strangely, there is very little connection between the dogmatic arguments and the sceptical replies. The watchword of the dogmatic section was '*archē*'; numbers featured in Pythagorean physics as principles and elements, and it was this employment of numbers as *archai* that made them a target for sceptical attack. And yet none of Sextus' sceptical arguments attack them in that role. Indeed, the word '*archē*' makes no appearance in the entire sceptical half of the chapter, from 284 to 309.

It is, of course, open to Sextus to say that he is approaching his task more elegantly (cf. *M* 9.3). If he can show that numbers do not exist at all, then he has thereby shown that they are not *archai*. And if he can show that they are not apprehensible, then they cannot function as the *archai* of a science, in virtue of which other things are known. Perhaps we should assume that Sextus had all of that in mind, without saying it. But if he intends the more general conclusion that numbers do not exist at all, then, as we have seen, he cannot rely on premises that assume that numbers must be generated in the Pythagorean manner.

The *M* 10 passage certainly looks nothing like an expansion of a pre-existing *PH* 3 passage; their basic outlines differ, and the *PH* passage makes no mention of Plato. The parallel passage at *PH* 3.151–67 is on the whole better organized and conducted with greater skill. To the extent that the comparison provides a basis for chronological speculation, it suggests that the *PH* passage was written later in Sextus' career than the *M* passage.

On the whole, this section is likely to remain of interest primarily to students of Pythagoreanism rather than to admirers of Sextus. Although I have emphasized the limits of its evidentiary value for that study, it is nevertheless one of the few pieces of evidence we have for that elusive school, in both its pre-Platonic and early Academic incarnations. Contemplation of this section may at least leave us feeling grateful that we do not have to rely on quotations in Sextus for our knowledge of Plato's *Phaedo*.

## *Appendix: Structural overview of M 10.248–309*

- 248: Introduction.
- 249–84: Exposition of dogmatic views
  - 249–62: The Criterial Argument that Monad and Dyad are the *archai*
  - 262–76: The Trichotomy Argument that Monad and Dyad are the *archai*
  - 276–84: Constructing the cosmos from the Monad and Dyad
- 285–309: Sceptical refutations
  - 285–90: Numbers vs things numbered
  - 291–2: Against genus
  - 293–8: Against participation
  - 299–307: Argument from human apprehension
  - 308–9: Addition and subtraction

# *Coming-to-be and passing-away: M 10.310–351*

*James Warren*

## **Introduction: outline and general comments**

- 10.310–18: The general applicability of these arguments against natural philosophy; doxographical excursus.
- 10.319–25: Previous arguments in *M* 9 and 10 are already sufficient for this topic since coming-to-be and passing-away presuppose: time, change, action and passion, addition or reduction or alteration, touch.
- 10.326–39: Direct arguments against coming-to-be: neither ‘what is’ nor ‘what is not’ come to be; coming-to-be must occur through alteration or composition but neither is possible; 334–8: a connected series of dilemmas rule out generation ‘from one thing via change’.
- 10.340–3: Attempted dogmatic responses through appeal to plain evidence; these responses rejected (on 10.341: discussion of textual issues and the interpretation of Sextus’ counter-argument).
- 10.344–5: Arguments similar to those in 10.326–39 can be used against passing-away.
- 10.346–50: Temporal puzzles: if Socrates died, did he die when alive or when dead? A puzzle about the destruction of a wall.
- 10.351: Conclusion and announcement of the topic of *M* 11.

The concluding section of Sextus’ arguments against the natural philosophers includes a summing-up of the concerns spelled out in the previous two books under the general heading of ‘an inquiry into coming-to-be and passing-away’ (ἡ περὶ τῆς γενέσεως καὶ φθορᾶς ζήτησις, 10.310). These two subjects of inquiry are understood sufficiently broadly so as to encompass not only what we might, in more-or-less Aristotelian terms, call ‘substantial’ coming-to-be and passing-away (the coming into existence or the passing into non-existence of some thing), but other kinds of change also. Examples used in this section range from water coming-to-be cold from being hot (10.340), to a statue coming-to-be from a lump of bronze

I would like to thank all the participants in the *Symposium* for their stimulating discussion of Sextus and, in particular, Richard Bett, Tad Brennan, Brad Inwood, David Sedley and Emidio Spinelli for their helpful, challenging and detailed comments on earlier drafts of this chapter.

(10.341), to nine coming-to-be from the subtraction of one from ten (10.323). Indeed, throughout this section, with its frequent reuse of arguments deployed earlier in *M* 9 and 10, it is possible to see Sextus closely assimilating coming-to-be and passing-away with change most generally.<sup>1</sup> Sextus' sights are therefore fixed on the most general understanding of coming-to-be and passing-away, such that he can then with some justice claim at the very beginning of this section (10.310) that these are the foundational concepts in any kind of natural philosophy since, as he goes on to claim, all natural philosophers who investigated the structure of the universe 'generated' (ἐγγέννησαν) all things in some way or another.

Sextus can therefore in this final section put into practice the preference he stated back at 9.3, at the beginning of his inquiry into natural philosophy, for 'more elegant' (χαριέστερα) arguments, which are those launched generally at shared and common assumptions, rather than point-by-point objections to a particular school's position: a tactic he associates particularly with Clitomachus and the Academy (9.1).<sup>2</sup> Thinking of coming-to-be and passing-away as in some way the 'foundations' of all natural philosophy is, I suspect, a metaphorical image which Sextus himself would heartily endorse. He has himself used the notion of 'undermining' (as in a siege) the tenets of natural philosophy at the opening of these two books (9.2) and returns once more at the end of this present section to an argument taken from Diodorus concerning the destruction of a wall into its component stones (10.348–9) as part of a case against the possibility of passing-away. The choice of image is not, presumably, accidental since it offers a neat example of ring composition and further evidence for some careful consideration of the overall structure of the two books against natural philosophy.

This decision to delay the topic of coming-to-be and passing-away until the very end of the work contrasts with the treatment of the same topic in *PH*.<sup>3</sup> The comparable passage on coming-to-be and passing-away at *PH*

<sup>1</sup> Note the reference during Sextus' dismissal of causation to Aenesidemus' use of 'difficulties concerning coming-to-be' at *M* 9.218: ὁ δὲ Αἰνησίδημος διαφορώτερον ἐπ' αὐτῶν ἐχρήτο ταῖς περὶ τῆς γενέσεως ἀπορίαις.

<sup>2</sup> On *M* 9.1 see also Declava Caizzi 1992: 287–92. Compare similar methodological claims at *PH* 2.84; 3.1; and *M* 1.40, 8.337a–8, 11.257. Sextus further elaborates at *M* 9.3 that it is more 'artful' (τεχνικώτερον) to catch a great number of prey with a single strategy or device (such as a large drag net which can catch huge numbers of fish in one go) than to go hunting with rod or bow and catch one thing at a time. It is perhaps debatable whether trawling for cod requires more art or skill than fly-fishing for trout, but Sextus' message is clear enough. This image may owe something to Timon of Phlius' *Silloi*, which perhaps included a scene in which various philosophers are likened to fish. See Long 2006: 90–2 for discussion and further references; cf. Di Marco 1989: 27–9.

<sup>3</sup> Note, however, that the very brief mention of Pyrrhonist doubts about coming-to-be and passing-away at Diogenes Laertius 9.100 comes immediately before the discussion of whether there is anything good or bad by nature (9.101), which Sextus treats in *M* 11.

3.109–14 does not occupy a concluding position exactly analogous to that here in *M*. Rather, *PH* 3.109–14 comes after a section on change and both before a section on rest and also before the discussions of space, time and number which are said to conclude the discussion of ‘the physical part of philosophy’ (*PH* 3.167). Indeed, Sextus makes it clear that coming-to-be and passing-away are being included in *PH* as species of change: he ends 3.114 with the announcement that ‘this is a sufficient outline which will do also for discussions of changes (περὶ τῶν κινήσεων). From these it follows that dogmatic natural philosophy (τὴν κατὰ τοὺς δογματικούς φυσιολογίαν) is non-existent and inconceivable.’ The general thrust of the passage is the same as we find in *M*, but in that longer work Sextus has a more ambitious understanding of the requirements of natural philosophy and the presuppositions needed for any satisfactory account of coming-to-be and passing-away; these two are explicitly recognized, for example, also to presuppose a dogmatic commitment to the reality of time.

As a result, in part, of this structural arrangement of topics in *M* 10, much of the material in this concluding section looks back to ground covered earlier in the two books *Against the Physicists*, either by explicitly referring to what has been shown earlier or by reusing arguments or forms of argument which have already been deployed against other aspects of the dogmatists’ physical views. Such recycling, although it does not prevent the occasional innovation or alteration of something we have seen before, contributes to the sense of this passage’s being a climax to the work as a whole in two ways. This final stretch of argument both allows Sextus a recapitulation of what has gone before and also provides him with serious and tested ammunition for a direct assault on what he takes to be the very basis of any dogmatic natural philosophy.

I should also make clear here what I take to be the range of possibilities for understanding Sextus’ general aims in this text or, perhaps more pertinently, the range of possible ways in which his text might be read. There is nothing here, so far as I can see, that prevents us from imagining Sextus’ arguments as an articulated set of examples and resources for a Pyrrhonist. That is, the arguments can be taken as providing both a readily available store of arguments to be set against a range of dogmatic opinions and also, in their articulated structure, an example of anti-dogmatic thinking at work. In short, the text can be approached both piecemeal by someone wanting to ‘look up’, as it were, a particular philosophical issue and its Pyrrhonist treatment and also as a continuous and sustained – and, presumably, therapeutic – train of thought. If this is plausible, we would as a result be right to think of the text as in a way ‘open-ended’,



since it offers invitations to the reader to supplement, expand, query and reread each section at liberty, perhaps as a way of flexing one's Pyrrhonist muscles or relieving occasional mental disturbances produced by dogmatic belief.

Sextus' discussion can be divided into five sections. First, by way of a general doxographical excursus, he shows how the arguments he is about to offer will be relevant for any proposed dogmatic natural philosophy (10.310–18). Second, he argues that, since coming-to-be and passing-away presuppose various conditions which earlier sections of the work have discounted, they have already been thoroughly undermined (319–25). Third, there is a long section of direct arguments against coming-to-be which sets out all the possible ways in which it might be said to occur and then denies all those possibilities (326–39). Fourth, the dogmatists are briefly allowed the right of reply, but their attempts to offer unquestionable perceptual evidence of cases of coming-to-be are all rejected (340–3). After a brief summary of symmetrical arguments against passing-away (344–5), Sextus concludes with two further examples designed to show on temporal grounds that there can be no coming-to-be or passing-away (346–50). The work then ends with a brief conclusion and the announcement of the topic of *M* II (351).

### **The general applicability of these arguments against natural philosophy (10.310–18)**

Sextus begins this concluding section by spending a reasonably long time putting together a taxonomy of physical theories, apparently intended to encompass as wide a diversity and as large a cast of philosophers as possible. For some of these philosophers, he justifies their position by the use of quotations from their works. For some, he notes interpretative problems and difficulties in assigning them a definitive place, registering that 'according to some' they thought one thing and 'according to others' another.

With this doxographical taxonomy, we might compare the similar but briefer example at *M* 9.359–66, which sets out various differing dogmatic conceptions of body.<sup>4</sup> There are a number of clear similarities of content. (In both, for example, Sextus corroborates some of his classifications by citing relevant sources. In both he quotes Xenophanes DK B33 and Empedocles DK B6.) But there are some interesting differences between

<sup>4</sup> See Betegh, in this volume.

the two texts both in content and form. The passage in *M* 9 is a list which moves from monism to pluralisms of increasing complexity, finishing with atomists and then the Platonists and Pythagoreans. Besides the number of types of body involved, the only other discriminating criterion is whether the principles are corporeal or incorporeal.<sup>5</sup> Here in *M* 10 Sextus has a more complex arrangement, beginning with a division between monism and pluralism and then dividing each according to whether the principles are definite (in kind, for the monists; in number, for the pluralists) and only then into the various *infimae species* of types of monism and versions of pluralism (see Figure 9.1).<sup>6</sup>

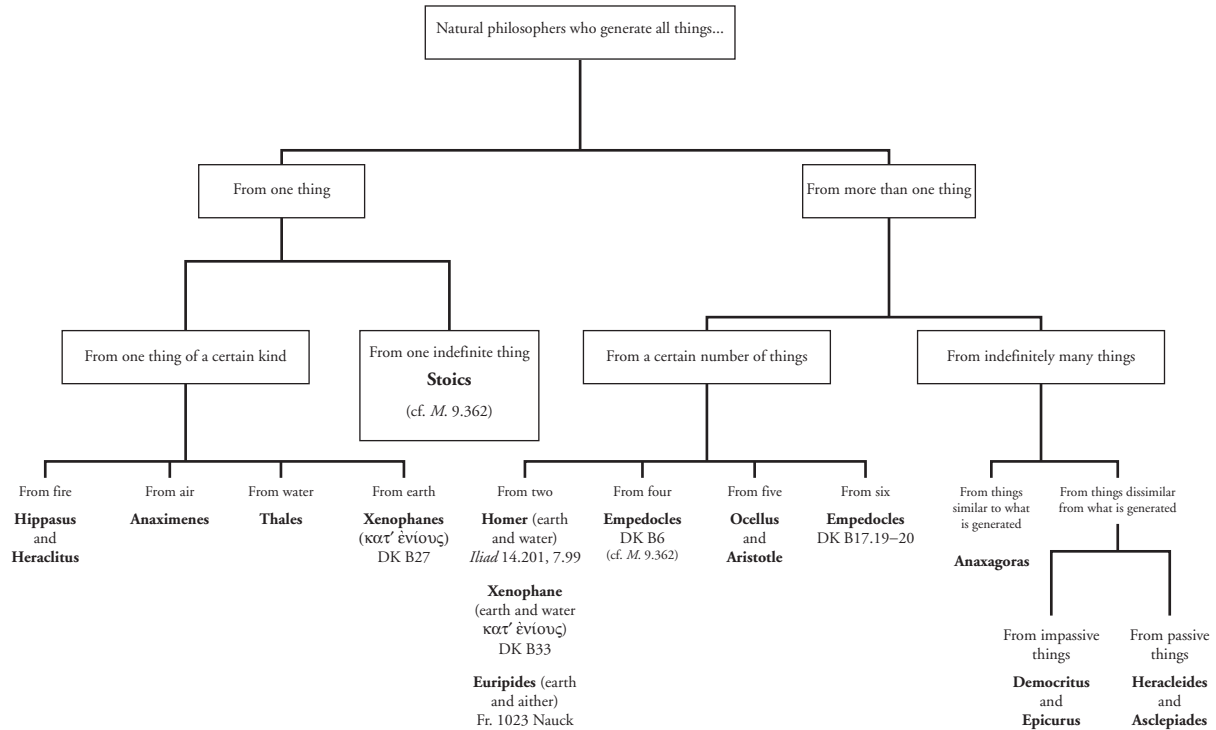
This section also differs from *M* 9 in doxographical content and certainty. For example, the *M* 10 version records two differing interpretations in the case of both Xenophanes and Empedocles: we learn that according to some Xenophanes is a monist (and DK B27 is cited in support) but according to others he is a dualist (and DK B33 is cited in support). At *M* 9.359, in contrast, Xenophanes is without doubt a dualist and no dissenting view is recorded. In a similar fashion, in *M* 10 Sextus records two opinions about Empedocles: that he recognizes four basic elements (for which DK B6 is offered as support) and that he recognizes six (Love and Strife are counted along with earth, air, fire and water). For the latter view, DK B17.19–20 is cited. This second opinion is nowhere to be found in *M* 9, where the four-element theory is the only one offered (9.362), perhaps because there the topic is specifically questions of ‘body’. Still further differences might also be noted. Along with Xenophanes, 9.359 lists some less well-known philosophers among the dualists,<sup>7</sup> while *M* 10 offers the less obviously philosophical but undoubtedly well-known pair of Homer and Euripides. *M* 9.362 lists the Stoics as four-element theorists while *M* 10 gives a much more elaborate explanation. It includes them as monists of a certain persuasion but describes how this one quality-less body is then transformed into the four familiar elements (10.312–13).<sup>8</sup>

<sup>5</sup> Compare the almost identical passage at *PH* 3.30–2. There is no doxographical section in *PH*’s treatment of coming-to-be and passing-away.

<sup>6</sup> The monists are listed in order of increasing ‘density’ of their proposed matter (first fire, then air, then water, then earth). This is the opposite of the order in 9.360–4. Note also that the Eleatics – Parmenides, Melissus and Zeno – appear in neither section, presumably because in denying κίνησις they are ἀφύσικοι (see *M* 10.46; cf. *PH* 3.65). On occasion, however, Sextus does appear more willing to include Parmenides; see e.g. *M* 9.9.

<sup>7</sup> Hippo of Rhegium (DK 38), Oenopides of Chios (DK 48), Onomacritus the Orphic (DK 41).

<sup>8</sup> ἐξ ἀποίου μὲν οὖν καὶ ἐνὸς σώματος τὴν τῶν ὅλων ὑπεστήσαντο γένεσιν οἱ Στωικοί· ἀρχὴ γὰρ τῶν ὄντων κατ’ αὐτοὺς ἐστὶν ἡ ἀποίος ὕλη καὶ δι’ ὅλων τρεπτή, μεταβαλλούσης τε ταύτης γίνεται τὰ τέσσαρα στοιχεῖα, πῦρ καὶ ἀήρ, ὕδωρ καὶ γῆ.

Figure 9.1 Schematic representation of S.E. *M* 10.310–18

Together with the careful record of differing interpretations of various Presocratics, the discussion of the Stoics emphasizes the impression that Sextus is offering a cautious and well-researched picture of the philosophical landscape. He is not, however, interested in giving an exhaustive account which lists all the known or significant philosophers.<sup>9</sup> For the most part, the various possible permutations, of the number of principles and – for the monists – of each one of the four canonical elements (fire, air, water, earth), are left each with just one representative. What matters to Sextus, therefore, is not that we should emerge with a clear and agreed account of any individual philosopher's or school's view; hence, he is quite happy to leave some interpretative issues unresolved. Nor is he concerned that this taxonomy should represent a comprehensive overview of philosophical history. Rather, it is extremely important for the general philosophical problems he wishes to raise that we should be able to populate each option in the schematic division of natural philosophical views with at least one plausible candidate. The overall message is that natural philosophy is characterized by an almighty *diaphōnia*: concerning not only the number of first principles, but also whether there is indeed a definite number of these first principles and whether the first principles are homogeneous or dissimilar from one another.<sup>10</sup> Every possible variation on this theme has found some exponent, but they are all – so Sextus wishes to persuade us – embarked on a thoroughly misguided project.

The doxography may give the impression that what is in question for these discussions of coming-to-be and passing-away is, specifically, some kind of material or corporeal change since the emphasis is on giving a taxonomy of physical cosmological principles. Most notably of all, there is no place in the taxonomy of M 10.310ff. for Plato and the Pythagoreans and their incorporeal principles, although they have certainly been Sextus' targets in other parts of the work and appeared in the discussion of theories of body at 9.364 as holding the view that the primary and most fundamental elements are incorporeal. Moreover, it is clear throughout the rest of this section that Sextus has in mind a notion of coming-to-be and passing-away more general than simple physical or bodily cases. For instance, when he comes in the next section to illustrate what he means by coming-to-be and passing-away by 'addition and subtraction' at 323–5,

<sup>9</sup> Those listed in M 9 but not here include: Pherecydes, Anaximander, Idaeus, Archelaus, Diodorus, Plato and the Pythagoreans.

<sup>10</sup> Cf. M 9.364: τοιαύτης δὲ οὐσίας τῆς κατὰ γένος καὶ κατ' εἶδος τῶν φυσικῶν διαστάσεως ...

the two examples are most easily classified as arithmetical: the passing-away of ten and the coming-to-be of nine by the subtraction of one, and the passing-away of nine and the coming-to-be of ten by the addition of one. (He contrasts this with the coming-to-be of vinegar and passing-away of wine, which occurs 'by change'.)<sup>11</sup> This group of cases as a whole, therefore, is not restricted to material or corporeal contexts but is rather more general. Indeed, at various points in what follows, Sextus seems to want to embrace in his attack those physicists who were prepared to make numbers – incorporeal numbers – important or even fundamental players in their cosmological systems. It is surprising, then, that such ontologies are conspicuously absent from this taxonomy of 310ff. given their inclusion at 9.364 and the fact that they have been the subject of a long discussion in the immediately preceding section of 10. As a result, it is difficult to avoid the impression that this taxonomy has been borrowed wholesale by Sextus from some unnamed source which shares much of the same information as that used in 9 but, in all likelihood, is not identical. There is also a sense that this taxonomy only imperfectly fits Sextus' aims precisely because of its exclusive concentration on material principles. Certainly, there are traces here and there in the more detailed arguments to come of Sextus wanting to include also the kinds of natural philosophy such as the Pythagorean view detailed earlier in the section on number (10.248ff.) which make use of intelligible or even immaterial principles.<sup>12</sup> (See, for example, below on 10.331.)

### **Previous arguments are already sufficient for this topic (10.319–25)**

The lesson of the doxographical excursus is spelled out clearly at 319. All of these natural philosophers assume the possibility of coming-to-be and passing-away whatever the various differences between their different natural philosophies. So those differences can from this point forward be ignored: what Sextus has to say next will hit home against every one of them and, indeed, if the taxonomy of their positions is intended to be exhaustive, also against any alternative or variant of such a theory yet to be articulated. This general applicability is presumably what makes Sextus'

<sup>11</sup> 'By change': κατὰ τροπήν, which seems to be equivalent to κατὰ μεταβολήν used later in the chapter.

<sup>12</sup> On which, see the contributions by Betegh and Brennan in this volume.

arguments of the more skilful and more elegant sort in comparison with point-by-point Academic refutation; he has managed to isolate the shared and essential foundation of all this variety of natural philosophical views and attacks it directly.

Next, Sextus warms further to his confident theme by making the case that the preceding sections of *Against the Physicists* are already themselves sufficient to show that there can be no coming-to-be and passing-away and therefore have undermined all such theory since coming-to-be and passing-away presuppose various necessary conditions which have already been denied. Indirectly, enough has been done already for us to reject coming-to-be and passing-away and, therefore, natural philosophy as a whole.<sup>13</sup> Sextus notes that:

- (a) whatever comes-to-be and passes-away does so ‘in time’ (ἐν χρόνῳ); but time is not – ‘as we showed above’ (at 10.170ff.) – and therefore nothing comes-to-be and passes away;
- (b) every coming-to-be and passing-away is an ‘altering change/motion’ (μεταβλητική κίνησις), but we have shown that change/motion is not (10.37ff.);
- (c) every instance of coming-to-be and passing-away requires an agent and a patient, but we have shown that nothing acts or is acted upon (9.195ff.);
- (d) if something comes-to-be and passes away then there should be:  
either (i) something added to something  
or (ii) something removed from something  
or (iii) something altering from something,  
but we have shown that there is no addition or subtraction or change (9.277ff.);
- (e) if something comes-to-be and passes-away then it ought to touch that from which it is destroyed and that into which it comes to be, but we have shown that there is no touch (9.258ff.).

If any one of (a)–(e) truly elaborates a necessary condition of coming-to-be and passing-away and if the relevant preceding arguments have indeed shown the non-existence of that condition, then the game is already up: natural philosophy as a whole is fatally flawed. Sextus is nevertheless very keen to point to this list of necessary conditions in order to display his vast array of ammunition against the physicists even before he goes on in the

<sup>13</sup> This is a tactic which Sextus has used before. See, for example, 9.366: if body is understood as ‘what is capable of acting or being acted upon’, given previous arguments (9.195ff.) against the possibility of acting or being acted upon, there cannot be body.

next section to dedicate various special arguments against coming-to-be and passing-away directly.<sup>14</sup>

There is surely some tension here between, on the one hand, Sextus' apparent insistence that coming-to-be and passing-away are in some sense foundational and basic concepts for any natural philosophy and, on the other, this new characterization of their relying on – rather than underlying – previously rejected concepts such as addition and subtraction. Perhaps Sextus is comfortable with the idea that natural philosophy in fact relies upon a set of mutually supporting notions, each of which relies on the others in, as it were, a circular set of justifications.<sup>15</sup> We cannot with great confidence say what Sextus himself took to be the correct order of priority between these concepts, nor indeed whether he felt it reasonable to assert that there is any such correct order. Nevertheless, he has evidently chosen coming-to-be and passing-away to be the culmination of this pair of books.

Returning to the set of connections outlined at 10.319–25, there are good dialectical reasons for Sextus to be offering a case which is overdetermined in this way. First, should the natural philosophers manage to wriggle out of any one of the difficulties he has already set up, then there may well be another which they cannot similarly avoid. And, considering the inquirer who has not yet decided whether to opt for any particular dogmatic physical explanation, this accumulation of considerations in opposition to all such accounts will, Sextus presumably imagines, eventually lead to *epochē* and subsequent tranquillity. Second, this section underlines the sense in which this concluding chapter of *Against the Physicists* caps and ties together the material in the previous two books by giving the strong impression that we have now reached the most basic presumption of all natural philosophy, namely that there is coming-to-be and passing-away, and that the various previous discrete discussions are all importantly prefatory to the undermining of this one central foundational assumption.

Of course, despite the rhetoric of a job already done, Sextus does not for one moment consider his task against the natural philosophers complete at this point. And reasonably so. However plausible a reader has found the various arguments Sextus alludes to in this brief list, there is good reason to think that more work is needed to show just how and in what sense

<sup>14</sup> On the structure of Sextus' case here cf. La Sala 2005: ch. 2, esp. 68–9.

<sup>15</sup> This result would presumably be pleasing to a Pyrrhonist familiar with the fifth mode of Agrippa (*PH* 1.69, cf. Diogenes Laertius 9.89). The point here would be that while the dogmatic physical system is internally coherent, its various general components rely upon one another and each one can be questioned. See Barnes 1990a: 63–4, and note his remarks on coherence at 82–9.

coming-to-be and passing-away presuppose these conditions. We have, in any case, not been given any significant account of what, precisely, Sextus understands by coming-to-be and passing-away and this might well obstruct our immediate acceptance that they have been sufficiently undermined already in this indirect fashion. But anyone expecting a Sextan clarification of what he thinks coming-to-be and passing-away are will be very disappointed. He does not, for example, anywhere in this section make anything like the distinction between absolute and qualified senses of coming-to-be. (Contrast Aristotle's careful analysis of coming-to-be and passing away *simpliciter*, alteration and growth in *GC* 1.3–5.) Perhaps we would be misguided to expect a Pyrrhonist, after all, to care overly about making such distinctions but, more importantly, Sextus appears not to think it worthwhile even to set out in any detail the various dogmatists' attempts at any such distinctions. He neither offers his own account nor chooses, even for the sake of argument, one of the various available dogmatic versions. Instead, at this early stage at least, he remains resolutely at a general level of analysis, insisting that his objections are relevant to any case in which one can comprehensibly say 'Y comes-to-be' or 'X passes-away' or 'X comes-to-be Y' or even 'X comes-to-be Y from Z', despite its evidently being possible to think that these differing formulas will require distinct metaphysical analyses. As the arguments progress, Sextus does make it clear that he is aware of the various attempts to navigate this difficult metaphysical territory but always, as we might expect, refrains from committing himself to any one particular set of metaphysical distinctions and also from tackling with any great specificity any one particular such analysis in his arguments. Furthermore, he seems very insistent that he should be at liberty to borrow more or less piecemeal, as he wishes and as the occasion demands, from the various dogmatists' ontological and metaphysical terminologies, all the time with a view to showing that any such moves are ultimately doomed to failure.

**Direct arguments against coming-to-be (10.326–39). Similar arguments can be used against passing-away (10.344–5)**

The possibility of distinct analyses of, for example, 'absolute' from other kinds of coming-to-be comes to the fore in the next set of arguments, which contains the real meat of Sextus' direct attacks on the dogmatic acceptance of coming-to-be and passing-away. These turn on the emphatically exhaustive and exclusive division between 'what is' (τὸ ὄν) and 'what



is not' (τὸ μὴ ὄν)<sup>16</sup> and, in recognizably Eleatic style, show how neither 'what is' nor 'what is not' can be the subject of either coming-to-be or passing-away. Sextus begins with and spends most time on his denial of the possibility of coming-to-be, turning only briefly at the end to point out that the very same arguments will hold *mutatis mutandis* against passing-away. He can therefore allow himself not to give a full account of these symmetrical arguments; we can, if need be, go back and work them through for ourselves (10.344–9).

Having noted that his arguments in the previous two books should already have undermined any confidence in coming-to-be and passing-away, Sextus turns to offer fresh arguments designed to tackle the subject directly (προηγούμενως 10.326).<sup>17</sup> He starts with a pair of very general arguments concerning being or 'what is' and not-being or 'what is not'. It is worth noting at the outset that they are extremely close to arguments which Sextus had used in 9.267–76 while rejecting the possibility of 'being affected' (τὸ πάσχειν). As we shall see, that section is clearly very much in Sextus' mind at the close of *M* 10 and he will return on a number of occasions to considerations already aired there. The argument at 10.326 proceeds as follows:

1. 'What is not' does not come-to-be because:
  - (i) nothing belongs to (συμβέβηκεν) not-being and coming-to-be does not belong to that to which nothing belongs (the same argument appears also at 9.276);<sup>18</sup>
  - (ii) what comes-to-be undergoes something (πάσχει) but only what is undergoes anything.
2. 'What-is' does not come-to-be because:
 

'what is' is already (ἤδη) so has no need (χρεία) of coming-to-be.<sup>19</sup>

The translation 'belongs to' is perhaps not the most lucid way to render Sextus' συμβέβηκεν. Certainly, it would be a little odd to think of 'coming-to-be' as a property, say, which belongs to an item in any way. Perhaps a

<sup>16</sup> See 10.327: ἀλλ' εἰ μήτε τὸ ὄν μήτε τὸ μὴ ὄν γίνεται, παρὰ ταῦτα δ' οὐδὲν ἔστι τρίτον ἐπινοεῖν, οὐδὲν γεννᾶται.

<sup>17</sup> Cf. *M* 7.34; 9.390; 9.418; 11.90.

<sup>18</sup> A similar argument appears at 11.219 to assert the unteachability of what is not.

<sup>19</sup> Sextus' argument here is interestingly different from the argument at *PH* 3.112, attributed to 'some people' (ἔνιοι). Having given another version of (1.i), Sextus there argues that 'what is' does not come to be since (1) if something comes-to-be, it comes-to-be other than what it is; and (2) the only thing other than 'what is' is 'what is not'. So the only thing which 'what is' could come-to-be is 'what is not'. There is a very brief mention of a similar argument also at Diogenes Laertius 9.100.

weaker notion is required: not-being is such that nothing belongs to it or can be related to it, certainly not coming-to-be. But the general point of (1.i) is tolerably clear, whatever the translation: 'what is not' is absolutely non-existent. There can be no properties of something that does not exist at all. Something that does not exist cannot undergo anything. And there is no non-existent subject whatsoever that might bear any property or undergo any sort of change, including coming-to-be. Note that for now Sextus leaves temporal aspects of this problem aside; later discussions will probe more deeply the problem that 'what is not' cannot come to be since *before* the proposed coming-to-be there is nothing, so to speak, which is about to undergo the process.

The most obvious first response is to note that Sextus here is not interested in making any distinction between different ways in which we might use 'what-is' and 'what-is-not' and related distinctions between senses in which something might be said to 'come to be'. He is not, for instance, interested in making a distinction at this point between 'what is' and 'what is not' in some absolute sense ('what exists', 'what does not exist') and some other sense, for example when 'is' is being used as a copula ('what is F' and 'what is not F'). Such concerns were clearly important in the later archaic and classical periods of Greek philosophy, in texts such as Parmenides' poem, Plato's *Euthydemus*, *Theaetetus* and *Sophist*, and later in Aristotle's developed ontology and account of change.

It is therefore highly unlikely that Sextus was unaware of the difficulties of dealing in an undifferentiated and apparently simple way with the pair: 'what is' and 'what is not'. He has nevertheless chosen to open his discussion with what might well appear to be a set of dusty, if not discredited, arguments. But there is a good reason for this. In using this starting point, Sextus encourages the reader to think that any answer to Sextus' problems that has a chance of success will have to offer a sophisticated and plausible account which distinguishes various ways in which we might say that something 'is' or 'comes-to-be'. (So, for example, it might be possible to accept the truth of (1.ii) in the sense of 'absolute' coming-to-be, *genesis e nihilo*, but deny that it rules out the possibility of something that already is coming-to-be in some other sense.) This successful account must be able to explain both cases of beginning and ceasing to exist and cases of a persistent subject's becoming or ceasing to be some particular way rather than another. These initial salvos, clearly indebted to a long tradition of arguments stretching back at least as far as Parmenides, will allow Sextus to open up the subject to further analysis and warm up the

reader for the remaining, more nuanced, arguments. As he moves on, it so happens that we do indeed come across quite a variety of what look to be technical metaphysical terms or distinctions perhaps motivated ultimately by some desire to react to this blunt Eleatic challenge. At one point, for example, while constructing a possible dogmatic response to his concerns, Sextus refers to the Peripatetic distinction between potentiality and actuality (340). Elsewhere, he uses ὑπόστασις, 'substance' or 'reality', a term relatively common in his works, in a way which suggests that it too is being borrowed from some dogmatic account of change (335: ἐκβαίνει τῆς ἰδίας ὑποστάσεως, ὅτε τρέπεται καὶ γεννᾶται, ἢ μένει μὲν ἐν τῇ οἰκείᾳ ὑποστάσει . . .). Even the contrast in 329 between some persisting substance (οὐσία) and its exchange of properties (ποιότητες) points to a determinate metaphysical outlook of some kind.<sup>20</sup> Obviously without endorsing any of the metaphysical distinctions suggested by such terms of art, Sextus shows that he is certainly aware of the range of manoeuvres the dogmatists have allowed themselves in response to these first bare puzzles about being and not-being. He does not waste time explaining these distinctions or even attributing them to any particular dogmatic school, presumably because he is trying to give the overall impression that whatever the terminology used or the distinctions employed, all such accounts, however baroque or inventive, fall foul of the same basic problems. That even the introduction of such distinctions turns out to be of little benefit to the plausibility of the dogmatists' case is also, evidently, something which Sextus would be quick to emphasize. In retrospect, therefore, or on a second reading, the apparently antique and naive arguments at 326–7 are revealed as a considered statement of a persistent and fundamental difficulty in the face of repeated but mistaken attempts at evasion.

The structure of the argument from 328–39 is complicated. In the main, Sextus continues his usual tactic of offering a series of exclusive and – apparently – exhaustive possibilities and then denying each. Here, he begins by claiming that coming-to-be occurs in one of the following two ways: alteration or composition.

- Either (a) *alteration*: from one thing, via *metabolē* (as a piece of wax may become soft from hard or some liquid may change from wine to vinegar);  
 or (b) *composition*: from many things via synthesis (as a chain may be formed from a number of rings or a house from bricks).

<sup>20</sup> With these expressions compare the introduction to the denial of *kinēsis* at 10.39–40.

These two are not, unfortunately, exhaustive. Sextus seems to associate composition with coming-to-be and dispersal solely with passing-away (for example, the destruction of a wall at 10.347–9), perhaps in order to generate a neat and tidy set of pairings. It is, however, quite possible to imagine a case of coming-to-be not by composition, but through its opposite: dispersal. We might imagine, for example, that a marble sculpture might come to be through dispersal from a block of marble as various portions of the rock are gradually chipped away and only some sections are left behind. (It is perhaps worth noting that Sextus' discussion of statuary seems confined to the use of bronze which is melted and then poured into a mould.)<sup>21</sup> Or we might imagine the coming-to-be of a text as portions of the wax poured over a wooden tablet are scraped away by a stylus.<sup>22</sup> All the same, nothing disastrous follows for Sextus' arguments from this apparent oversight and we can easily construct, if necessary, Sextan arguments to cope with the new possible variations.

Sextus himself presses on in 10.333–7 to deny the possibility of (a), again by offering a series of apparently exhaustive possibilities: this alteration can occur only through (a.i) growing, (a.ii) shrinking or (a.iii) staying the same. Paragraphs 338–9 briefly discount (b). The details of this argument will concern us shortly, but it is worth noting first a further contrast at work here. Paragraph 328 begins by noting various possible examples of coming-to-be observed 'among the appearances' (ἐν τοῖς φαινομένοις) while 331 considers the possibility also of analogous cases 'among the intelligibles' (ἐν τοῖς νοητοῖς). It is not perfectly clear whether by 'intelligibles' Sextus means to refer to immaterial imperceptible items such as number-principles or, perhaps, material imperceptible items such as Epicurean atoms. Perhaps we are to imagine him trying to encompass both possibilities. But whatever the precise reference of the term, Sextus of course leaves the extension of coming-to-be to intelligibles as merely hypothetical, while reporting without any qualms that perceptible things do indeed *appear* to come-to-be: these are *phainomena* with which the Pyrrhonist is faced

<sup>21</sup> Most of the references to statues (specifically to what Sextus terms an ἀνδριάνς, namely a free-standing human figure) are clearly to cast bronze examples. See 10.341, discussed at greater length below (pp. 390–4) and compare 10.26; 1.108; and M 7.376–7. The only possible exception I can see is at M 9.197, where Sextus recounts an argument for nature being a cause based on the idea that the natural world exhibits the same evidence of gradual crafting as a sculptor's studio in which some statues are just begun, some half-completed, and others finished. This could be a description of a carver at work, but it might well also apply to statues made by casting bronze.

<sup>22</sup> Sextus himself has mentioned the coming-to-be of nine from the subtraction of one from ten (323). This might be a case of coming-to-be via *dispersal* if the one is merely removed and thought somehow to persist 'elsewhere', as it were.

constantly and are what the dogmatists will turn to rely on later at 340ff. But the brief excursus on the intelligibles at 331 certainly interrupts the otherwise clear flow of thought from the dilemma between cases of phenomenal alteration and composition. Why complicate matters with even this passing reference to intelligibles coming-to-be?

In 331 Sextus revisits considerations very like those we have already encountered at 326–7 and returns to a dilemma which denies coming-to-be for both what is and what is not. Clearly, he felt the need to offer something to ward off the objection that he has ignored the possibility of intelligibles coming-to-be and passing-away, by focusing entirely on perceptible instances. But the material he offers here in order to ensure that he includes that possibility is admittedly somewhat repetitive and threatens to disrupt the clarity of his exposition. As we saw when considering the taxonomy of physical theories at the beginning of this section, Sextus' primary interest is in discounting the possibility of any coming-to-be or passing-away of the sort generally asserted by natural philosophers or cosmologists. And it is therefore examples of this sort, namely examples of *perceived* cases of physical coming-to-be, which are offered by his imagined dogmatic opponents at 10.340. Nevertheless, Sextus is obviously aware that he ought not to leave an escape route for those who held that there were imperceptible intelligible existents somehow involved in processes of coming-to-be and passing-away, and this comment is an indication that he wishes to undermine those ideas too. By the beginning of 332, however, the overall sequence of thought is reasserted and Sextus concentrates on the three possible means of 'coming-to-be from one': growth, shrinkage and staying in the same state. Intelligible objects and the question of whether anything intelligible might come-to-be or pass away are neglected from this point onwards. The discomfort apparent here in integrating discussion of coming-to-be involving intelligible objects is therefore perhaps related to the omission of Plato and the Pythagoreans from the initial doxography. Sextus clearly is aware that there are some philosophers who might think his general emphasis on perceptible coming-to-be and passing-away leaves untouched their own preferred principles or ignores their positing of the involvement of non-perceptible intelligible things in cases of coming-to-be or passing-away. So he is aware that something also needs to be said about these cases. But nevertheless the greater emphasis in this entire section is on perceptible objects and their purported comings-to-be and passings-away.

The argument against alteration quickly dismisses the possibility of coming-to-be through growth or shrinkage by noting that these either

collapse into species of the next possibility: composition (e.g. growth might be thought of as the addition of new materials to make a greater composite) or else violate some very basic principles denying coming-to-be from nothingness or passing-away into nothingness. In short, when, for example, an acorn comes to be an oak tree, this is probably best thought of as a case of composition. Various things in the acorn's environment are assimilated over time into the formation of a new and larger composite: the oak tree. We had better not accept the alternative, namely that the growth is not caused by the assimilation of other already existing matter, since then the growth of an oak tree from an acorn somehow would increase the total amount of material in the universe and would therefore involve a case of coming-to-be from what is not. Similarly, shrinkage cannot involve some absolute diminution in what is, rather than a loss of certain elements of a composite which nevertheless continue to exist in some form. No natural philosopher worth taking seriously would want to violate the very basic principles of conservation.<sup>23</sup> Coming-to-be and passing-away by means of composition are then left to be dealt with a little later, at 338–9.

In the meantime, one final possibility remains for 'coming-to-be from one thing': 334–8. The central idea of this possibility ought to be promising: something remains through a process of coming-to-be or passing-away, thereby avoiding the violation of any principles of conservation. But Sextus soon pounces on a difficulty: what precisely is it to 'remain' through a process of coming-to-be? He puts pressure on this difficulty in characteristic fashion by asking whether or not the thing that remains (τὸ μένον) alters and changes (334). Clearly, the dogmatist will feel pulled in both directions. On the one hand, because of the pressure not to assert objectionably that there is coming-to-be from what is not or passing-away into what is not, he is trying to find something to persist through a process of coming-to-be, to exist both before the process begins and once it has ended. On the other hand, whatever persists must, if it is to undergo any sort of change, in some sense be different once the process has ended from before the process began. It is no surprise, therefore, that this is precisely the tension which Sextus exploits.

The structure of the argument of 334–8 is extremely elegant. Sextus offers a sequence of four successive dilemmas, immediately denying one arm of each and then generating the next dilemma from the remaining

<sup>23</sup> A possible exception is Xeniae of Corinth: see *M* 7.53 (DK 81) and Brunschwig 2002.

alternative. Gradually the dogmatists' options are denied one by one. On the present hypothesis, generation is asserted to be from one thing. In that case, Sextus argues . . .

[A] . . . what remains 'generates something out of itself' either itself being (1) unchanged and unaltered or (2) out of itself being changed and altered.<sup>24</sup>

A1 is immediately rejected:

[B] But nothing would have come to be from it remaining unchanged in this way. For coming-to-be is a certain kind of alteration.<sup>25</sup>

A2 is also rejected by first offering another dilemma:

[C] But if what comes to be comes to be from something changing or altering, then it comes to be either (1) changing into itself or (2) into something else.<sup>26</sup>

C1 is rejected:

[D] And if what generates something changes into itself then again it remains the same, and in itself remaining the same will be generative of nothing additional.<sup>27</sup>

Then C2 is rejected by offering a third dilemma:

[E] But if it changes into something else then either (1) it leaves its own substance (τῆς ἰδίας ὑποστάσεως) when it changes and is generated or (2) it remains in its own substance (ἐν τῇ οἰκείᾳ ὑποστάσει) and is generated by taking on one form in exchange for another (ἄλλο δὲ εἶδος ἀντ' ἄλλου εἶδους), just as wax when moulded takes on a different form (ἄλλην μορφήν) at different times.<sup>28</sup>

Before moving through the rest of the argument, let us note that this section of the argument is an excellent example of Sextus' current overall approach to metaphysical terminology. Even in this one sentence there is a clear avoidance of repetition. There is little reason, for example, to imagine

<sup>24</sup> εἰ γὰρ τοῦτο, ἥτοι ἀτρέπτου καὶ ἀμεταβλήτου μένοντος αὐτοῦ γεννᾶται τι ἐξ αὐτοῦ, ἢ ἐκ τρεπομένου καὶ μεταβάλλοντος.

<sup>25</sup> ἀλλ' ἐξ ἀτρέπτου μὲν καὶ αἰεὶ ὡσαύτως μένοντος οὐκ ἂν γεννηθῇ τι ἑτεροίωσις γὰρ τίς ἐστιν ἡ γένεσις.

<sup>26</sup> εἰ δὲ ἐκ τρεπομένου καὶ μεταβάλλοντος, ἥτοι εἰς ἑαυτὸ μεταβάλλοντος γίνεται τὸ γεννώμενον ἢ εἰς ἕτερον.

<sup>27</sup> καὶ εἰ μὲν εἰς ἑαυτὸ μεταβάλλοι τὸ γεννητικόν τινος, πάλιν μένει τὸ αὐτό, καὶ μένον τὸ αὐτὸ οὐδενὸς ἔσται περισσοτέρου γεννητικόν.

<sup>28</sup> εἰ δὲ εἰς ἕτερον τρέποιτο, <ἥτοι> ἐκβαίνει τῆς ἰδίας ὑποστάσεως, ὅτε τρέπεται καὶ γεννᾶται, ἢ μένει μὲν ἐν τῇ οἰκείᾳ ὑποστάσει, [εἰς] ἄλλο δὲ εἶδος ἀντ' ἄλλου εἶδους μεταλαμβάνον γεννᾶται, ὡς ὁ μετασχηματιζόμενος κηρὸς καὶ ἄλλοτε ἄλλην μορφήν ἀναδεχόμενος.

any distinction between the two phrases translated as ‘its *own* substance’ (using the two adjectives *ιδία* and *οικεία*); indeed the argument would not function properly by outlining an exclusive and exhaustive dilemma if there were intended any significant difference. Similarly, there is little impetus to attempt a distinction between two familiar words for ‘form’: *εἶδος* and *μορφή*. In part, of course, the variation may be merely a stylistic choice but there may also be a tactical reason. The terminological variation invites us to accept that this argument stands against a broad range of dogmatic metaphysical accounts and therefore its force is quite general. Had Sextus chosen to cast the argument using items recognizable as exclusively Stoic or Peripatetic terminology, it would not have been obvious that the case is not simply *ad hominem* or pertinent only to a particular metaphysical scheme. In addition, to the extent that at this period metaphysical terminology had become more or less shared property between the major schools, Sextus’ attempt at an all-encompassing attack will be that much more effective.

Returning to the argument, first E1 is rejected:

[F] But leaving its own substance, it will pass away into what is not and will generate nothing while passing away into what is not.<sup>29</sup>

Then E2 is rejected by offering yet another dilemma:

[G] But if it is generated remaining in its own substance and taking on one quality in place of another it is beaten by the same difficulty, since the second form and second quality come to be of it, with the first form and former quality either (1) remaining or (2) not remaining.<sup>30</sup>

G1 and 2 are then rejected together, by a reference to a previous discussion:

[H] But the second form comes to be neither with the first form remaining nor with it not, as we have earlier established when we were considering ‘what undergoes’.<sup>31</sup>

The conclusion to this long and elaborate argument is perhaps something of a disappointment, being little more than yet another back reference to a point apparently already established in the last two books. But Sextus is

<sup>29</sup> ἀλλ’ ἐκβαῖνον μὲν τῆς ἰδίας ὑποστάσεως εἰς τὸ μὴ ὄν φθαρῆσεται, καὶ εἰς τὸ μὴ ὄν φθειρόμενον οὐδὲν γεννήσκει.

<sup>30</sup> εἰ δὲ μένον ἐν τῇ ἰδίᾳ ὑποστᾷσει καὶ ἄλλην ἀντ’ ἄλλης ποιότητα ἀναδεχόμενον γεννᾶται, κρατεῖται τῇ αὐτῇ ἀπορίᾳ. ἥτοι γὰρ μένοντος τοῦ πρώτου εἶδους καὶ τῆς προτέρας ποιότητος περὶ αὐτῷ γίνεται τὸ δεύτερον εἶδος καὶ ἡ δευτέρα ποιότης, ἢ μὴ μένοντος.

<sup>31</sup> οὔτε δὲ μένοντος τοῦ πρώτου εἶδους γίνεται τὸ δεύτερον εἶδος οὔτε μὴ μένοντος, ὥς ἔμπροσθεν παρυστήσαμεν, ὅτε περὶ τοῦ πάσχοντος ἐσκεπτόμεθα.



evidently confident that the important argumentative work done in those earlier sections is sufficiently robust that he does not need to repeat himself at this juncture: the dogmatists' attempt has collapsed into a problem the sceptic has dealt with some time ago. This is another instance in which Sextus stresses the interconnected failings of the dogmatic project and hence the interconnections within the anti-dogmatic riposte. It is also another invitation to the reader to review and reconsider earlier material. Most likely, we are referred once again to the stretch of argument at 9.267–76, a text which we have already noted as having significant links with 10.326–7 and which we will have reason to mention on more than one further occasion in examining what follows in *M* 10 (particularly 10.341–2 and 10.346; see below): it is clearly something of a reference point for Sextus in composing this entire section. In short, the argument in *M* 9 rests on the principle that opposite properties cannot simultaneously exist in a given subject, so that, for example, an iron bar cannot simultaneously be hard and soft in the same respect (9.271–2). So it is impossible for a hard iron bar to become soft if its hardness, so to speak, remains. This will give Sextus one half of his conclusion. What is needed in addition is the claim that a hard iron bar cannot become soft if its hardness does not remain and in order to secure this second conclusion some extra argument is needed. We can presume that the possibility that something might come to be 'with the first form not remaining' is ruled out on the grounds that then there would be, in effect, no persistent subject of the change. And in that case it is impossible to think that any change has occurred. This is the force of an earlier section of the argument, [F] above, which discarded as a potential case of coming-to-be any circumstance in which the supposed subject departs from its own substance; this is made equivalent to its passing away into what is not.<sup>32</sup>

This long series of dilemmas has been constructed in order to establish that there can be no coming-to-be 'from one thing via change'. On any possible analysis of what this claim might amount to, it turns out that this one thing, the proposed subject of the change, either has to perish or else somehow accept the simultaneous presence of opposite properties. Neither alternative looks very promising. There now remains the other alternative offered back in 328, namely coming-to-be 'from many via composition'.

<sup>32</sup> The argument here is highly reminiscent of the discussion of compresence and change at Plato, *Phd.* 102d ff. I argue below that there are reasons to think that the *Phaedo* ultimately lies behind other sections of this stretch of *M* 10, although there is no way to know for certain whether Sextus himself is using the Platonic work directly or is responding to a tradition of thinking inspired by the work.

This is dealt with very swiftly. Sextus asserts that composition cannot adequately account for coming-to-be, apparently on the assumption that composition is to be understood narrowly as simply the placing together of two or more things. The examples we were offered in 330 are perhaps worth recalling. Composition describes cases such as the manufacture of a chain through the collocation of links, of a house by the collocation of bricks, and of a robe by the weaving of woof and warp. It is important for Sextus, then, to insist that the hypothesis of coming-to-be in this manner must not imply or rely on any notion of change of the sort just dismissed in the elaborate dilemmatic argument. Rather, the dogmatist must refer only to the combination of things that both pre-exist and persist after the purported coming-to-be without themselves undergoing any change.

With this in mind, Sextus simply asserts that the mere combination of two things in this way cannot of itself generate a new third item. He accepts that his argument here is brief and refers the reader to a 'more accurate' account of the substance of human elsewhere, but the general principle is clear. If we think of the example of a chain, the notion would be that nothing new has come-to-be in the putting together of the links. Each link pre-existed the chain and each link remains unchanged in itself once they have all been placed together. So we have a staunchly reductive account of, for example, what a chain is: it is merely a number of links placed together, nothing more. Similarly, we are to think that a house is nothing over and above, or in addition to, the various bricks and the like that are placed together as it is made.

There is a pleasing similarity between Sextus' argument here and Aristotle's concerns about atomism. Like the account being attacked here in *M* 10, Aristotle thinks that the atomists cannot give a satisfactory account of (absolute) coming-to-be since they must analyse all change in terms of the coming together and dispersal of otherwise unchanging and everlasting atoms. His criticisms are perhaps best found in *GC* 1.2. For example:

Nevertheless, coming-to-be *simpliciter*, i.e. absolutely, is not defined by aggregation and segregation (σύγκρισις καὶ διάκρισις), as some say; nor is change in what is continuous the same as alteration. This is just where all the mistakes are made. Coming-to-be and ceasing to be *simpliciter* occur, not in virtue of aggregation and separation, but when something changes from this to that as a whole. These people think that all such change is alteration, but there is in fact a distinction. For within the substratum there is something which corresponds to the definition and something which corresponds to the matter. When, therefore, the change takes place in these

it will be generation or corruption: when it takes place in the affections, accidentally, it will be alteration. (*GC* 1.2.317a17–27; trans. C. J. F. Williams)

Aristotle thinks that he can reject the atomist idea that all absolute coming-to-be is merely aggregation or dissolution without thereby being forced to accept that there is no change except alteration. His hylomorphic analysis will, he thinks, allow him to distinguish between changes to the matter or form and changes to the accidental properties of a given matter–form composite.<sup>33</sup> Now, there is no reason to suppose that Sextus has Aristotle in particular in his sights, but a comparison between the two positions may be helpful. In response to such an Aristotelian view, Sextus would presumably claim that he has already, in the previous discussions of change in general and of ‘coming-to-be from one thing by alteration’, adequately discounted an alternative to the atomist-like analysis of coming-to-be as mere aggregation. So Sextus is presumably confident that he is entitled at this point to describe the relevant cases of coming-to-be in language that points very clearly to physical material composition (συνελθόντων, σύνθετον 338; cf. σύνθεσις and ἐπισύνθεσις at 328–30). As part of that earlier dismissal of coming-to-be through alteration, of course, he had been careful to show that his concerns applied also to the sort of analysis which deals – as Aristotle thinks we should – in the business of substrates and exchanging forms or properties. Aristotle’s preferred alternative has already been shown to be wanting. If that leaves only the atomist-like analysis which someone like Aristotle himself thinks is wrong-headed, then Sextus’ job is done. In effect, an Aristotelian opponent has already rejected the one remaining alternative to his own flawed position and now has no means of escape from the sceptics’ trap.

The reference to the discussion of the ‘substance of human’ is also worth some thought. Commentators generally take this to be another reference to a text clearly on Sextus’ mind, namely *M* 7.263ff. and the long section on whether it is possible to know what a human is, which contains a number of arguments dedicated to particular attempts at a definition. Some of these, to be sure, do appear to have something to do with notions of composition. So, for example, Sextus discounts attempts which in his eyes merely enumerate certain properties of a human (e.g. ‘mortal rational animal’) since the common combination of properties is distinct from the thing of which these are the properties (see e.g. 7.269–82, 295). But Sextus

<sup>33</sup> For a recent discussion of this chapter see Sedley 2004.

has a different point to make here in *M* 10. He has in mind not the question of how we come to have the concept of a human (as elsewhere he explains the acquisition of the concept of centaur via the putting together of human and horse: e.g. *M* 3.40–2; 8.58–60; 11.250–1), but rather the question of what a human is: the physicists' attempt to explain the nature of a human. Sextus' claim on that score is that the nature of human is to be explained neither as a soul, nor as a body, nor – and this is presumably the most important point – as the combination of the two. Perhaps the closest claim to this to be found in what we have is a point implicit in the argument about Socrates' death (9.269) which resurfaces at 10.346–7, particularly if we are to bear in mind a Platonist notion of a living person as in some sense a composite of a body and soul (for more discussion, see below). But if we are to imagine an argument along the lines of the analysis we have been offered of a chain, then it is easy to see how an argument might be constructed for the view that it is absurd to accept that a human is not a soul and also not a body, but nevertheless say that it is the combination of a body and a soul. Indeed, there is some evidence that critics of Socrates were interested in this very question. Plutarch's *Adversus Colotem* 1118C–1119B spends some time responding to the Epicurean Colotes' attacks on Socrates for not being able to say clearly what he is. (*Adv. Col.* 1119B suggests that the Epicureans took their cue from Plato, *Phdr.* 230a.) Part of Plutarch's response is that it is perfectly natural and not at all debilitating to begin to wonder, for example, 'Am I a blend or mixture of soul and body, or rather a soul which uses the body as a rider uses a horse and not something composed of both a horse and a man?' (*Adv. Col.* 1119A). It is certainly not difficult to imagine a general Platonist interest in such questions – themselves potentially significant in ethical terms – which might in turn fuel sceptical objections.<sup>34</sup> But whatever the precise reference of Sextus' comment here, the general argumentative strategy against coming-to-be by composition is perfectly straightforward. Less contentious examples, such as the coming-to-be of a chain, are easily constructed. For example: given that the chain is neither link 1, nor link 2, nor link 3 . . . how can it be that the chain is link 1 + link 2 + link 3 . . .? It has to be said, nevertheless, that there is something evidently unsatisfactory about such an argument and we are left to imagine what Sextus would have to say to other kinds of example. Take the case of a robe; it is not

<sup>34</sup> It is also worth considering whether Sextus was directly influenced by the Epicureans' critical stance evident in Colotes' work. There are some interesting speculations about Sextus' use of Epicurean critical arguments in Delattre 2006.

obviously absurd to say that a robe is neither the woof nor the warp but is a combination of the two.<sup>35</sup> What response might Sextus be able to give? If, in a generous mood, we are not inclined to think that he has simply overlooked such an objection, then we should say something like the following: perhaps Sextus is aware of this omission from his text and, with further arguments not expressed here, would be prepared to fight this particular battle if required; or perhaps Sextus is at this point prepared to leave some of the possible dialectical responses to his arguments without an explicit and full answer, leaving the reader to rely on Pyrrhonist resources already acquired in reading thus far. In any case, it would presumably take a dogmatist a lot of work to persuade him to accept a metaphysical distinction between an item's essence or nature and its material composition.

### Attempted dogmatic responses (340–3)

The military image of the dogmatists' citadel under siege, found first at 9.2, resurfaces when Sextus imagines how they might respond to his attacks. Their first move is the decidedly uncourageous decision not to meet the sceptics on the open field of rational argument, but instead to retreat to examples from plain evidence (οἱ δὲ δογματικοὶ μὴ πρὸς νοῦν ἀπαντῶντες πάλιν ἐπὶ τὰ ἐξ ἐναργείας ὑποδείγματα συμφεύγουσιν, 10.340).<sup>36</sup> They offer a list of examples of various 'evident' cases of coming-to-be: hot water becomes cold, a piece of unsculpted bronze becomes a statue, an egg becomes a chick, a baby is born, some grass can be pressed into juice.<sup>37</sup> In each case the dogmatist stresses that prior to the coming-to-be the subject in question is not what it will be later, resulting in some clumsy-sounding phrases: the hot water, not being cold (*sc.* when it is hot), becomes (*sc.* later) cold.<sup>38</sup> Furthermore, although they are supposed to be mere descriptions of what is evident, these examples seem to be already combined with a degree of dogmatic metaphysical analysis built in, as it were, which points forward to the preferred explanation of how the change

<sup>35</sup> At *M* 9.395 Sextus offered as an example of 'conception (τὸ ἐπινοεῖν) via composition' the 'Hippocentaur', which is 'neither a man nor a horse, but rather a composite of both' (ὁ μήτε ἄνθρωπος ὢν μήτε ἵππος, σύνθετος δὲ ἐξ ἀμφοτέρων ἵπποκένταυρος).

<sup>36</sup> For ἀπαντάω, also in *M* 10.340, in the sense of 'meet in battle or litigation' see LSJ s.v. I.2 and I.3.

<sup>37</sup> This last example is medical in inspiration. See e.g. Galen, *De Simpl. Med.* vol. II p. 831.10, 844.17; vol. 12 p. 61.2, 149.15.

<sup>38</sup> Cf. *M* 9.197 for a description of the various stages of completion among statues in a sculptor's workshop.

occurs. Most obviously, the egg is said to be ‘a chick in potentiality, but not in actuality, but it is said to be a chick in potentiality until it [*sc.* the chick] exists in actuality’ (10.340).<sup>39</sup> As Sextus goes on to explain, this type of analysis might allow the dogmatist a response to the general sceptical worry that coming-to-be cannot take place because it must be undergone either by what is or by what is not, with either alternative proving to be problematic. By distinguishing a substrate (the bronze) or a potential but not yet actual existent (the chick), the dogmatist can attempt to say that there is no difficulty in saying that ‘what is not’ comes to be (e.g. a statue comes to be, but only from what is not a statue – the bronze – not from nothing at all) or that ‘what is’ comes to be (the chick comes to be but, prior to its coming-to-be, it ‘is’ only potentially).

Before we turn to Sextus’ reply, we should note the unusual terminology of ‘potentiality’ and ‘actuality’ in this last example of the chick and egg. It is not unusual in ancient philosophy in general, of course, since the apparatus of ‘potentiality’ and ‘actuality’ is quite familiar Aristotelian material. But these terms are unusual in Sextus’ works: ἐντελέχεια occurs only here in this example and Sextus’ response and in M 1.315. That latter reference lists the word as an Aristotelian ‘technical term’ (ἐπιστημονικὴ λέξις) and wonders how the grammarians can be said properly to understand it. There is no doubt, therefore, that Sextus is aware that he has introduced at this juncture a specifically Aristotelian term of art even if there is good reason to think that here in M 10.340–2 it is meant to stand also simply as an example of a general dogmatic tactic for analysing coming-to-be. But beyond this, it is extremely difficult to draw any further conclusions about Sextus’ knowledge of Aristotelian metaphysics in general, let alone the more specific question we might have wanted to ask about his knowledge of any particular treatises.<sup>40</sup> The example of bronze and a statue is a familiar Aristotelian illustration of the distinction between matter and form or potentiality and actuality, but the example of the chick and egg as an illustration of the potentiality/actuality distinction seems to have no clear Aristotelian background.<sup>41</sup> Quite possibly, Sextus himself is responsible for imagining the deployment of this particular piece of Aristotelian analysis for this specific example or he has borrowed it from a medical or biological source. (It is also perhaps worth noting that Sextus

<sup>39</sup> τὸ ὥν κατὰ δύναμιν μὲν ἔστι νεοσσός, κατ’ ἐντελέθειαν δὲ οὐκ ἔστιν, ἀλλὰ λέγεται κατὰ δύναμιν εἶναι νεοσσός εἰς τὸ κατ’ ἐντελέθειαν ὑπάρχειν. The second part of this phrase (ἀλλὰ . . . ὑπάρχειν) is excised by Bury, following Heintz. It is rightly retained by Mutschmann, since it helps to explain Sextus’ next comment.

<sup>40</sup> Cf. Annas 1992. <sup>41</sup> Cf. Arist. *Metaph.* 1022a36–b2; 1065b23–4.

does not come back explicitly to the chick and egg example in his response at 341–3, although he refers to all the others: the water, the statue, the baby and the juice. Instead, his response is a very general concern about the potentiality/actuality account of coming-to-be.)

We can make more progress in explaining how Sextus goes about countering these various dogmatic examples. He takes them in three distinct categories. The first covers two examples: of hot water becoming cold and of the lump of bronze becoming a statue. These examples are subjected to a treatment based on the exclusivity of being and not-being that has been used in various guises already (e.g. 326–7) and will return once again with the added complication of temporal considerations in the next section (346ff.). In short, Sextus asks how it is that hot water can become cold if it is hot and not-cold; surely something cannot be both hot and cold? Similarly, how can a lump of bronze which is a lump of bronze and not a statue come to be a statue? The overall sense of his complaint is clear; however, the way in which he phrases his argument is puzzling and it is hard to shake the feeling that there is either something wrong with the transmitted text or else Sextus has lost his precise grip on what he should be saying. Certainly, the argument is rather intricate and therefore demands some closer attention.

Sextus' response at 10.341 is as follows:

τὸ γὰρ θερμὸν ὕδωρ καὶ οὐκ ὄν ψυχρὸν οὔτε θερμὸν γίνεται τῷ εἶναι οὔτε ψυχρὸν τῷ μὴ εἶναι παρὰ δὲ τὸ εἶναι <καὶ μὴ εἶναι><sup>42</sup> οὐδὲν ἔστιν οὐκ ἄρα οὐδ' ἐπὶ τοῦ ὕδατος ἔστι τις γένεσις. καὶ πάλιν οὔτε ὁ χαλκὸς γίνεται τῷ εἶναι χαλκὸς οὔτε [ὁ]<sup>43</sup> ἀνδριάς τῷ μὴ εἶναι.

The water, being hot and not being cold, does not by its being become hot, nor by its not being become cold. But there is nothing besides being and not-being, so there is no coming-to-be in the case of the water. And, similarly, neither does the bronze come-to-be by being bronze, nor [the] statue by not-being.

The first surprising claim is that the hot water does not become hot 'by being', presumably 'by being hot'.<sup>44</sup> This might appear odd because in the original presentation of the dogmatists' point at 340 there was never any

<sup>42</sup> καὶ μὴ εἶναι add. Fabricius. <sup>43</sup> ὁ del. Heintz.

<sup>44</sup> This construction using τῷ εἶναι as a bare dative of respect is rare in Sextus. Besides its appearance here, it occurs prominently in the argument at *M* 1.10–14 concerning whether 'what is' or 'what is not' is taught. Sextus there contends that neither is 'what is' taught τῷ εἶναι, nor is 'what is not' taught τῷ μὴ εἶναι. (Bury renders the dative in the *M* 1 argument with 'qua'; Blank prefers 'in so far as'.) On the argument see: Blank 1998: 87–94 and see also *PH* 3.253–9; *M* 11.222–3 and Diogenes Laertius 9.100. The *M* 1 and *M* 10 arguments appear to be closely related. Only they (and

question of the hot water becoming hot at all. Rather, the hypothesis was the rather more straightforward idea that some hot water becomes cold (τὸ γὰρ ὕδωρ θερμὸν ὄν, μὴ ὄν δὲ ψυχρόν, γίνεται ψυχρόν); this, after all, is what we are most likely to think can be shown through plain empirical evidence. If the received text is retained, Sextus must be making a rather complicated point in reply. Not only does he rule out the idea that the hot water might become cold (because it is not cold, and hot water can never be cold hot water) but he also rules out a further possibility that the dogmatists had not themselves suggested, namely the idea that the hot water might come to be hot. It cannot do so simply because it *is* hot. Wherever you look, then, there is no coming-to-be to be found here. Hot water cannot come-to-be because it *is*, namely *is hot*; hot water cannot come-to-be cold because it *is not cold*.

It might be possible to understand the claim about the statue in a different way. In the case of the water, the careful inclusion of the predicates makes it reasonably clear that what Sextus denies is two possibilities for the *hot water* to come-to-be in some way: it cannot come to be hot and it cannot come to be cold. It would be difficult to understand the text to deny, for example, that some *cold water* cannot come-to-be because *it* is not; the subject throughout must surely be ‘the water which is hot and not cold’ (τὸ γὰρ θερμὸν ὕδωρ καὶ οὐκ ὄν ψυχρόν). In the case of the statue, however, the point may be different. At least, if the definite article is retained and we read ‘the statue’ (ὁ ἀνδριάνς), Sextus would now appear to deny (i) that the bronze can come-to-be, because it is (perhaps: is bronze) and (ii) that the statue can come-to-be, because it – the statue – is not (perhaps: does not exist). This argument would then be a close parallel to the opening general argument against coming-to-be at 10.326–7.

This is the best interpretation of Sextus’ argument available if we leave the text as it has been transmitted. Sextus, perhaps rightly, deals differently with the two examples which were listed without distinction by the imagined dogmatists as cases of apparent coming-to-be. It may be a little odd for him to take care to deny something that the dogmatists had not themselves bothered to claim, namely that the hot water comes to be hot, but we may feel comfortable with this as another instance of Sextus’ often exhaustive approach.

the passage in Diogenes Laertius, as Blank notes (89)) use the bare dative of respect, while the other versions use some form of a *kata* or *katho* construction. Compare also *M* 1.11 (τῷ τε μὴ ὄντι οὐδὲν συμβέβηκεν, ᾧ δὲ μὴδὲν συμβέβηκεν, οὐδὲ τὸ διδάσκεισθαι συμβήσεται) with *M* 10.326–7. So, here, the sense seems to be something like the following: the hot water, for example, does not come-to-be hot *in so far as it is hot*.



There is therefore no requirement for us to interfere with the transmitted text, but there are nevertheless various ways in which this section might be altered by very slight textual emendations to produce a different and perhaps tidier overall argument. For example, it is possible to replace the second 'hot' (θερμόν) in the sentence just quoted with 'cold' (ψυχρόν).<sup>45</sup> (Perhaps the mistake could be put down to a scribe with an over-zealous drive for finding balancing opposite properties to go with the balancing 'by being' and 'by not being'.) Then the argument in the case of the water would be the more obvious: 'the water, being hot and not being cold, cannot by its being [*sc.* hot] become cold, nor by its not being [*sc.* cold] become cold'; the apparent cooling hypothesized by the dogmatists is ruled out in two ways by the single fact that the supposed subject of the coming-to-be is marked as hot. It is impossible for there to be, so to speak, *cold* hot water: in this sense hot water is not and cannot be cold. Some support for this form of argument can be found elsewhere in *Against the Physicists*, indeed in a text which, as we have already seen, is in all likelihood in Sextus' mind when composing these final pages. At 9.271–6, during his discussion of 'acting and being acted upon', Sextus considers a very similar case of some hard iron being softened. The iron is agreed to be hard 'by nature' (φύσει). There, the argument proceeds (271–2):

So when it is hard and exists, then it cannot be softened, since if it is softened when it is hard then the opposites will simultaneously occur in the same thing. And in so far as it is in a state of existence, it will be hard, but in so far as it is affected in some way, being existent, it will be soft. But the same thing cannot simultaneously be conceived as hard and soft. Therefore what is, when it is, cannot be affected.<sup>46</sup>

The overall idea is that the hard iron cannot become soft since it cannot be both hard and soft and if hard iron were to become soft then there would have to be some compresence of hard and soft. In that sense, 'what is' cannot be affected if to do so would make it take on any properties contrary to those it has now: it cannot be what it is not. Nor, says Sextus, can 'what is not' undergo any affection since *qua* what is not it can have no properties (9.276). We might further notice that this section of *M* 9 was clearly in Sextus' mind when composing the end of *M* 10 since, as we shall

<sup>45</sup> Το γίνε: τὸ γὰρ θερμόν ὕδωρ καὶ οὐκ ὄν ψυχρόν οὔτε ψυχρόν γίνεται τῷ εἶναι [*sc.* θερμόν] οὔτε ψυχρόν τῷ μὴ εἶναι [*sc.* ψυχρόν].

<sup>46</sup> οὐκοῦν ὅτε μὲν σκληρόν ἐστι καὶ ὄν, οὐ δύναται μαλακύνεσθαι, ἐπεὶ εἰ μαλακύνεται ὅτε σκληρόν ἐστιν, ἔσται τάναντία περὶ τῷ αὐτῷ ὕφ' ἐν. καὶ ἢ μὲν καθέστηκεν ὄν, ἔσται σκληρόν, ἢ δὲ πάσχει ὄν ὑπάρχον, ἔσται μαλακόν. οὐ δύναται δὲ τὸ αὐτὸ ὕφ' ἐν καὶ σκληρόν καὶ μαλακόν νοεῖσθαι· οὐ δύναται ἄρα τὸ ὄν, ὅτε ὄν ἐστι, πάσχειν.

shortly see, the example of the impossibility of Socrates' death occurs just before the example of the hard iron (at 9.269) and will turn up, slightly modified, just after the present section at 10.346.

In short, some support can be marshalled in favour of emending the text at 341 both from the general run of the argument and from such parallels as the case of the iron. We might also hope that some assistance in making a decision will be offered by Sextus' immediately subsequent analysis of the case of the bronze and the statue. The transmitted text of 10.341 reads:

οὔτε ὁ χαλκὸς γίνεται τῷ εἶναι χαλκὸς οὔτε ὁ ἀνδριάς τῷ μὴ εἶναι.

This would have to be translated and understood as follows: 'Neither does the bronze come to be by being bronze, nor does the statue come to be by not being.'<sup>47</sup> We can assume that the first clause is intended to mean that the bronze does not become *a statue* by being bronze, but it is not clear what the second clause might mean. By not being what does the statue not come to be? By not being *simpliciter*? By not being a lump of bronze? If these difficulties are thought intolerable, there is good reason to support Heintz's deletion of the definite article before ἀνδριάς. Accepting Heintz's deletion, now the argument reads:

οὔτε ὁ χαλκὸς γίνεται τῷ εἶναι χαλκὸς οὔτε ἀνδριάς τῷ μὴ εἶναι.<sup>48</sup>

Neither does the bronze come to be [*sc.* a statue] by being bronze, nor does it come to be a statue by its not being [*sc.* a statue].

This gives us a closer parallel for the case of the water and a comprehensible response to the dogmatists' starting hypothesis of an apparent change from a lump of bronze to a bronze statue. But it is admittedly somewhat awkward that 'statue' is specified in the second but not the first limb of the dilemma.

The difficulties in construing the argument precisely may well mark textual difficulties caused by various scribes faced with the potentially confusing pairs of opposites or repeated predicates and balancing positives and negatives. Charity would ask us not to think Sextus himself was confused. It is nevertheless rather difficult to come up with a clear, plausible and consistent set of arguments for the two examples which is directly motivated by the presentation of the dogmatists' case at 10.340

<sup>47</sup> Bury has 'neither does the bronze become bronze by being so nor a statue by not being so'. This construal includes the odd concern to rule out the bronze's coming-to-be bronze, which is analogous to the odd concern to rule out the hot water's coming-to-be hot.

<sup>48</sup> This is the text Bury follows in his translation. Mutschmann retains the article.

without making some change to the text. Our choice will therefore be guided to a large extent by more general presumptions about the level of precision, clarity and attention to detail to be expected from Sextus. All the same, despite the various uncertainties, it is tolerably clear what sort of argument he was trying and it is of a sufficiently familiar form that we can perhaps move on without too much further concern.

The second response is reserved especially for the potentiality/actuality analysis. Sextus asks whether in what is actual there is 'more' (πλεῖον) than in what is potential. A predictable dilemma then follows: if there is more in what is actual than what is potential then when an actual chick comes to be from an egg this additional something has come to be from what is not; but if there is no more to what is actual than what is potential then in fact nothing has come to be. On the face of it, this is a crude response and might give further support to doubts over whether Sextus had himself spent any time reading carefully Aristotle's explanation of this distinction. Certainly, it looks back to Sextus' arguments against coming-to-be through increase or growth back at 333: what is actual is understood to be somehow an increase on what is merely potential. This increase is being conceived, it seems, in physical terms: there is somehow simply more 'stuff' there once the potential has become actual. But if the dogmatist is unhappy with this perhaps crude understanding of there being 'more' once the potential is actualized, it would be up to him to make clear precisely in what sense of 'more' we should understand this characterization.

The third response covers the cases of the birth of a baby and the extraction of juice from grass. Both of these, we are urged to agree, are simply cases of something pre-existent and hidden being moved and revealed rather than genuine cases of coming-to-be. The juice was in the grass but has now been moved so that it is separate from the fibrous matter. The baby was undoubtedly in the pregnant woman and when born simply becomes evident, much like someone stepping out from the shadows. Sextus does allow his opponent to object that this is not entirely the point: whether or not there was some period of time at which the baby, say, was already present but not yet evident, it is nevertheless true that the baby was generated from the mother (καὶ βρέφος ἐκ τῆς ἐγκύμονος γεννᾶται, 10.343). This is simply brushed aside by Sextus with a rhetorical question wondering about its relevance. The relevance, however, is clear even though Sextus may choose not to dwell upon it. We might object that it will not do for Sextus simply to say that the baby was 'already there' and did not therefore come to be. To make this plausible Sextus would, it seems, need to have some kind of embryological theory of his own in

which there is no conception as such but merely the growth and later birth of already existing children. Such a view would seem to ask us to accept that a mother's second child, say, is already present but hidden while the first gestates and is then given birth. Sextus' case is much better if, rather than relying on some such dogmatic embryological theory of his own, he is instead merely pointing out that if this example is to count as a clear and evident example of coming-to-be (one of τὰ ἐξ ἐναργείας ὑποδείγματα) then it is unfortunate that it relies on a particular view of something clearly non-evident, namely conception.<sup>49</sup> If it is legitimate simply to assert a dogmatic view on the truth of something which cannot (or at least could not in his day) be observed, then Sextus is no less entitled to assume something different and contrary: the dogmatist's 'plain and evident example' turns out to rely on a particular assumption about something non-evident and therefore can be easily challenged or disregarded.

### **Temporal puzzles and conclusion (10.346–51)**

The next arguments are attributed to an unnamed group of thinkers who approach the problem of coming-to-be and passing-away from a temporal perspective. The only person named in this section is Diodorus Cronus (at 10.347) and some of the arguments are clearly related to or reused from earlier sections which bear a distinctively Diodoran stamp. Two examples are offered: the problem of Socrates' death (10.346) and, at greater length, the explicitly Diodoran example of the problem of the dismantled wall (10.347–9). Paragraph 10.350 draws the general moral of the two examples.

Sextus spends more time with the problem of the wall for perhaps two reasons. First, the construction of a house from stones has already figured in these arguments as a possible example of coming-to-be by composition (10.330) and this example offers a pleasing mirror image by concentrating on the difficulty of accounting properly for the demolition of such a structure. Second, it is not implausible to imagine Sextus recalling at this point his description of the sceptics' project at the beginning of *M* 9 as like the undermining of a tower's walls during a siege. That was supposed to encapsulate the notion of a sceptic digging away at the foundations of a dogmatic physical system, removing the 'primary assumptions' (αἱ πρῶται ὑποθέσεις, 9.2) and thereby causing the whole edifice to fall. It is a neat example of the sceptic's insistence that everything should be subjected to

<sup>49</sup> Sextus himself uses the imperceptibility of the exact moment of conception in his criticism of Chaldaean astrologers. See *M* 5.55–64 and Spinelli 2000 ad loc.

his questioning that at the end of these books the process referred to in this metaphor is itself shown to depend on dogmatic physical assumptions, namely that it is possible for a tower to be undermined and collapse. Sextus has no qualms about returning to the example at the end of his two books and himself undermining the *comparandum* he had offered at the beginning as a metaphor for his own project.

Sextus begins the first example with a curious hypothetical premise: 'If Socrates died . . .' (10.346). Of course, Sextus' intention is to cast doubt on the reasonable assumption that Socrates *did* die by raising difficulties for the assumption that it is possible for something, or someone, to pass away. (So this argument provides the counterpart to the concerns raised in 10.343 against the possibility that a baby might be born or come to be.) But it is also significant that Sextus has chosen to cast this argument not in general terms about 'someone' passing away, but about one person in particular: Socrates. To be sure, 'Socrates' is often used as an example in philosophical arguments with no particular reference to the famous philosopher, but there may be a special relevance here.<sup>50</sup> The question whether Socrates died is not such a surprising one, at least perhaps not for a Platonist. A Platonist of a certain persuasion might, after all, argue that if, as is claimed in the *Phaedo*, the soul is immortal and if, as might again be a reasonable Platonist claim, each of us ought to think of himself principally as an immortal soul, then there is a reasonable sense in which Socrates – the immortal soul – does not die when the cup of hemlock has been drained. It is in any case not implausible that some such debate might lie behind these remarks if we remember Sextus' recent reference to an argument about whether a person (ἄνθρωπος) is a body, a soul, or some compound of the two (10.338).<sup>51</sup> If Socrates is his soul and a soul is immortal then he does not die. If, on the other hand, Socrates is a compound of a body and soul, and death – perhaps following the initial definition at *Phaedo* 64c which Sextus himself notes at *M* 9.198 – is the moving apart of body and soul, then the following problem might also have to be faced:

If Socrates died, then he died either when he was alive or when he was dead.  
But he did not die when alive. For he was then alive and, being alive, he did

<sup>50</sup> *M* 10.288–9 would be a good example of his being used alongside Plato and the familiar 'Dion' and 'Theon'.

<sup>51</sup> Remember also Sextus' recent reference to the *Phaedo* at *M* 10.302, 305–7 (on which see Brennan, in this volume). Hellenistic critics of Socrates often made reference to his apparent ignorance of what he is, particularly as dramatised at Plato, *Phdr.* 229–30. See e.g. *PH* 2.22; *M* 7.264. Cf. Ioppolo 1995 and Brouwer 2008.

not die. Nor did he die when he was dead. For then he would be dead twice over. Therefore Socrates did not die.<sup>52</sup>

Socrates must be either dead or alive and he cannot be both. But he cannot die when he is alive, nor can he die when he is already dead. So Socrates cannot die. No doubt, there is something decidedly sophistic about the argument but it is not easy to say precisely what. A brief look back at the first appearance of this form of argument in *M* 9.268–9 also reveals some important characteristics of its reuse here.<sup>53</sup> The *M* 9 version wonders if Socrates ‘dies when he is or when he is not’ (ὡν θνήσκει ἢ μὴ ὡν). Had he wished, Sextus could simply have repeated the same concern in *M* 10: he could have wondered if dying is an absolute passing away into not-being and perhaps ruled out Socrates’ dying ‘when dead’ by insisting that it is impossible for ‘what is not’ to undergo anything. Indeed, when summing up the overall picture from this argument and its successor, at 10.350, Sextus does rely on the strong premise that to pass away is to exist no longer and argues that in that case neither can what is pass away (because at that time it is) nor can what is not (because at that time it is not). In the present argument, however, Sextus wants to rely only on the thought that living and being dead are exclusive and exhaustive states; there is no explicit talk of Socrates’ ‘being’ or ‘not-being’.

The argument appears to turn on a denial of the possible simultaneity of certain states of affairs (note the repeated ‘when’, ὅτε), so Sextus had better be careful with his tenses. In fact, there is a rather complicated story to be told about the role played by different tenses in Sextus’ presentation of the argument here and elsewhere. For example, the earlier appearance of this argument at *M* 9.268–9 puts everything in the present tense. The argument about the wall which follows at *M* 10.347 is also in the present tense. In contrast, the whole argument here in *M* 10 is cast in the past, beginning with the hypothesis: ‘If Socrates died (ἀπέθανε), he died either when he *was alive* (ἔζη) or else when he *was dead* (ἐτελεύτα).’<sup>54</sup> Both

<sup>52</sup> εἰ ἀπέθανε Σωκράτης, ἦτοι ὅτε ἔζη ἀπέθανεν ἢ ὅτε ἐτελεύτα. καὶ ζῶν μὲν οὐκ ἀπέθανεν. ἔζη γὰρ δῆπουθεν καὶ ζῶν οὐκ ἐτεθνήκει. οὐτε δ’ ὅτε ἀπέθανεν. δις γὰρ ἔσται τεθνηκώς. οὐκ ἄρα ἀπέθανε Σωκράτης.

<sup>53</sup> *M* 9.269: οἷον ὁ Σωκράτης ἦτοι ὡν θνήσκει ἢ μὴ ὡν. δύο γὰρ οὗτοι χρόνοι, εἰς μὲν ὁ καθ’ ὃν ἔστι καὶ ζῆ, ἕτερος δὲ καθ’ ὃν οὐκ ἔστιν ἀλλ’ ἐφθαρταί· διόπερ ἐξ ἀνάγκης ὀφείλει κατὰ τὸν ἕτερον τούτων θνήσκειν. ὅτε μὲν οὖν ἔστι καὶ ζῆ, οὐ θνήσκει· ζῆ γὰρ δῆπουθεν· θανῶν δὲ πάλιν οὐ θνήσκει, ἔπει δις ἔσται θνήσκων, ὅπερ ἀτοπον. οὐ τοίνυν θνήσκει Σωκράτης.

<sup>54</sup> Compare *PH* 3.110–11, which again uses the past-tensed version of the argument but prefaces it with a similar and symmetrical argument against the notion that Socrates was born: εἰ ἐγενήθη Σωκράτης, <ἦτοι> ὅτε οὐκ ἦν Σωκράτης ἐγένετο Σωκράτης, ἢ ὅτε ἦν Σωκράτης. ἀλλ’ εἰ μὲν ὅτε ἦν ἤδη γεγενῆσθαι λέγοιτο, δις ἂν εἴη γεγενημένος· εἰ δὲ ὅτε οὐκ ἦν, ἅμα καὶ ἦν Σωκράτης

verbs in the disjunction are imperfect, contrasting with the aorist ἀπέθανεν, since Sextus wants to offer the two possible states Socrates might have been in at the point in time at which he died; his death is imagined as the end-point of two possible ongoing states. The dismissal of the two possibilities requires more intricate work with the tenses: ‘Socrates *did not die* (οὐκ ἀπέθανε: aorist) *while alive* (ζῶν: a present participle) for he *was alive* (ἔζη: imperfect) and he *had not died while alive* (ζῶν οὐκ ἔτεθνήκει: a present participle and a pluperfect).’ This last point is of course correct: it is no doubt always true to say of some living person that he ‘has not died’ and Sextus has carefully crafted his claim to rely on this foundation.

There are two points to note here. First, Sextus seems to have helped himself to something which supports his case without canvassing all the other possibilities. In particular, there is a reasonable distinction to make between two senses of ‘to die’: (i) referring to a momentary event which is the end of a life and (ii) referring to a temporally extended process of the failure of vital functions.<sup>55</sup> For example, although ‘Socrates *had not died* when alive’ is true, as is the related ‘Socrates *has not died* when alive’, we might be less happy to accept as necessarily true the related but distinct ‘Socrates *was not dying* when alive’ (referring perhaps to a process of passing away). The salient point here is clear in the distinction between imperfect and aorist tenses, but it is more generally the distinction between verbs with ‘complete’ or ‘perfective’ aspect and those with ‘incomplete’ or ‘imperfective’ aspect. A similar point might be made about the argument cast in present-tense terms, if these are taken to have a present continuous sense. It is not obvious nonsense, for example, to say ‘Socrates *is dying* while alive.’ Further, although it is something odd to say in English and, presumably, similarly odd in Greek, it is not evidently illegitimate to say ‘Socrates died when alive’, meaning that the moment of Socrates’ death should be thought of as the final limit of his life.<sup>56</sup>

Sextus leaves part of his dismissal of the second arm of his dilemma unstated: ‘nor . . . when he was dead’ (οὔτε δ’ ὅτε ἀπέθανεν) for then he

καὶ οὐκ ἦν. ἦν μὲν τῷ γεγονέναι, οὐκ ἦν δὲ κατὰ τὴν ὑπόθεσιν. καὶ εἰ ἀπέθανε Σωκράτης, ἦτοι ὅτε ἔζη ἀπέθανεν ἢ ὅτε ἀπέθανεν. καὶ ὅτε μὲν ἔζη, οὐκ ἀπέθανεν, ἐπεὶ ὁ αὐτὸς ἀν καὶ ἔζη καὶ ἔτεθνήκει· ἀλλ’ οὐδὲ ὅτε ἀπέθανεν, ἐπεὶ δις ἀν εἶη τεθνηκώς. οὐκ ἄρα ἀπέθανε Σωκράτης.

<sup>55</sup> There is a good case for thinking that Sextus ought to be aware of this distinction. See his attempt to claim that the Epicureans were not innovative in arguing that ‘death is nothing to us’ and, in particular, his citation of Epicharmus (DK B11) at M 1.273: ἀποθανεῖν ἢ τεθνάναι οὐ μοι διαφέρει (a verse he later, oddly, attributes to Sophron: M. 1.284; Cicero, *Tusc.* 1.15 offers a translation and attributes it to Epicharmus). See Blank 1998: 291 and 308 and Warren 2004: 4–6.

<sup>56</sup> See e.g. Van Evra 1971.

would be dead twice over. Nor what? Presumably: ‘Nor did Socrates die . . .’, since the original dilemma was put in terms of a disjunction of possibilities for when Socrates died (ἀπέθανε) and Sextus would therefore reuse the very same verb precisely to emphasize the absurdity of the double death it would apparently involve. But we might notice that what is rejected here, namely ‘Socrates died when he was dead’ (ὅτε ἀπέθανεν), is possibly distinct from the hypothesis originally advanced when Sextus was setting out his dilemma, which used an imperfect tense for the second verb (ὅτε ἐτελεύτα).<sup>57</sup> If that imperfect tense is stressed it is perhaps not so easy to see an absurdity: ‘Socrates died when he was dying’ is again perhaps an odd thing to say, but it is not necessarily absurd. It might mean that Socrates’ life came to an end after an extended period of its passing away.

Second, the fact that we have a pair of arguments – this past-tense argument at *M* 10.346 and the present-tense version in *M* 9.268–9 – might offer further pointers to the source of the argument’s general inspiration. Sextus himself should be well aware of the fact that concerns had been raised over the relationship between present- and past-tense descriptions of a change or state of affairs. Diodorus Cronus has already in this book been credited by Sextus with the view that true past-tense propositions need have no direct correspondence with an equivalent true present-tense proposition (*M* 10.97–8). For example, the fact that ‘Helen had three husbands’ is now true does not require us to believe that ‘Helen has three husbands’ was ever true. All this is related closely to Diodorus’ insistence that we should not say of anything that it ‘is moving’ but only that it ‘has moved’ (*M* 10.85ff.); the latter can be true without the former also ever having been true. (When Sextus himself attempts to respond at *M* 10.96, 99–100, it seems he would prefer to accept either both as true or both as false.)<sup>58</sup> Such concerns about the relationship between tenses and aspect in discussions of change might suggest that Diodorus is the source for the Socrates argument not only at *M* 9.268–9 but also here at *M* 10.346 as well as for the argument about the wall which follows it at *M* 10.347 and is explicitly attributed to him. Unfortunately, Sextus’ introduction of the second example of the wall seems to rule out this possibility. We are told at the beginning of 347: ‘[Diodorus] Cronus too (καὶ ὁ Κρόνος) offered an

<sup>57</sup> Presumably, Sextus does not repeat the verb ἀποθνήσκω in his original formulation in part simply for the sake of variation.

<sup>58</sup> For discussion see Denyer 1981, and Hankinson’s contribution in this volume. Frede 1993: 144–5 discusses the possibility of a debate between Diodorus and his critics lying behind the later Stoic doctrine of the tenses.



argument to the same effect but with a different example.' The implication is that on Sextus' view the preceding example of Socrates' death is certainly not directly Diodoran. Still, at the very least we should say that Sextus' treatment of the Socrates argument is heavily indebted to Diodoran methods and interests. Even more speculatively, Sextus may, by offering this pair of arguments, be showing here that unlike Diodorus he has no interest in distinguishing between claims and arguments cast in the past tense and those in the present. At any event, we would be right to think that Sextus' general engagement with Diodorus' concerns lies behind this brief argument at *M* 10.346 no less than the more extended one to follow.<sup>59</sup>

The problem concerning the destruction of a wall, which Sextus does explicitly attribute to Diodorus, is analogous to that of Socrates' death and again brings together various strands of thinking that have been at work both in this section against coming-to-be and passing-away and also throughout *M* 10 as a whole. The wall cannot pass away when its component stones are fitted together, for that is what it is for the wall to be and 'if it is then it cannot be passing away' (εἰ ἔστιν, οὐ φθείρεται, 10.349). Similarly, the wall cannot pass away when the stones are no longer fitted together since in that case the wall already no longer exists and 'nothing which does not exist can pass away' (τὸ δὲ μὴ ὄν οὐ δύναται φθίρεσθαι, 10.349). The crucial starting premise is that the stones in a wall must either be together or else dispersed; we can conceive of only these two moments and of no third possibility in between (10.348). The argument is not immediately very convincing, but it is worth exploring the possible dialectic between Sextus and a recalcitrant dogmatist. Imagine a dogmatist who is prepared to do more than rely on the earlier tactic of using the plain evidence of the senses: 'Look! There used to be a wall here, but now there are just these stones.' Instead, he is willing to take on Sextus' arguments and provide some kind of answer to the temporal location of the passing away. First, the dogmatist might object that Sextus has wilfully overlooked the obvious and most important stage in the envisaged process: namely, a stage at which some of the stones have been dispersed and some are touching. It is not true that we can conceive only of  $T_1$ : a moment when all stones are touching, and  $T_3$ : a moment when they are all dispersed, since there is also  $T_2$ : a moment when some are touching and some are

<sup>59</sup> If these suggestions are on the right lines, then we might further wonder whether there is a similar Diodoran inspiration behind the famous Epicurean argument that death cannot be a harm to the living or the dead since 'when death is we are not, and when it is we are not' (see Epicurus, *Ep. Men.* 125).

dispersed. This allows us to talk of the wall's passing away since the crucial stage  $T_2$  is after  $T_1$  but before  $T_3$ . If we wish, we could specify any number of moments between  $T_1$  and  $T_3$  arranged in order according to a gradually increasing proportion of dispersed stones. All in all, this perspective encourages us to think not of there being some single particular state by virtue of which it is true to say at that time that the wall 'is passing away' but to think of its being true to say that the wall 'is passing away' just if there is some appropriate sequence of stages of increasing dispersal. At the end of the process it will be true to say that the wall has passed away.

Sextus can respond in various ways to this alternative picture. First, he might require his opponent to concede that, on this analysis, it turns out not to be true at any particular moment that the wall 'is passing away'. By 'moment' he will mean an indivisible temporal point because the dogmatist will have to concede that any extended period in the purported dismantling of the wall will have to be further analysed into component temporal parts under pressure from a version of the original Sextan argument: 'It is not true that the wall *passes away* in period P since during P either the wall is or is not; and if it is it cannot pass away and if it is not it cannot pass away . . .' Strictly speaking, therefore, it is not true ever to say that the wall *is passing away* since this cannot be true of any given present instant. If it is true at all, it is true only in the sense that 'at this moment a greater proportion of the stones in the wall are dispersed than at some prior moment'. There are clear parallels to be drawn here between this extension of the argument and some interpretations of Zeno's paradox of the arrow and Aristotle's attempted response.<sup>60</sup> And, closer to home, there are some clear relationships between the imagined dialectic over the possibility of rescuing some sense in which we might say 'the wall is being destroyed' or, at the very least, 'the wall has been destroyed' and some earlier Diodoran material. Consider, for example, the Diodoran argument at M 10.85–90 for the conclusion that it is not true to say of anything that it 'is moving', only that is 'has moved'. Further, the Diodoran argument at 10.87: 'If X moves, it moves either in the place where it is or in the place where it is not' has an obvious temporal analogue here in the thought that 'If X passes away it either passes away when it is or when it is not.' That connection is made all the stronger since in the case imagined here the passing-away consists precisely in the moving apart of the stones in the wall.

<sup>60</sup> See Lear 1981; Le Poidevin 2002.

Second, Sextus could have chosen to focus the argument still further on the particular interaction between one stone and another. He has already wondered about the sense in which any one thing can 'touch' another (*M* 9.258–66, just before the first appearance of the problem of Socrates' death at 9.269) and could raise various doubts about whether any two stones in the wall can be 'being separated'. In doing so, he would cast doubt on the dogmatists' attempt to make the passing-away of the wall a process comprising various smaller events of pairs of stones coming apart. Third, the dogmatist's response is implicitly committed to the idea that a wall passes away when a certain proportion of its stones are dispersed. This is an obvious target for a sorites argument.

In various ways, therefore, although Sextus' argument as stated here is perhaps not the strongest independent case against the possibility of passing-away one might wish for, like the previous brief argument about Socrates it evidently looks back to ideas and arguments from earlier in the work against the natural philosophers. It is not implausible to think that the reader might be encouraged and expected to supplement the arguments here with the resources supplied by those earlier discussions and to recognize the manner in which this attack on the most fundamental assumptions of the natural philosophers is related to the considerations already launched against its more specific points.

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